

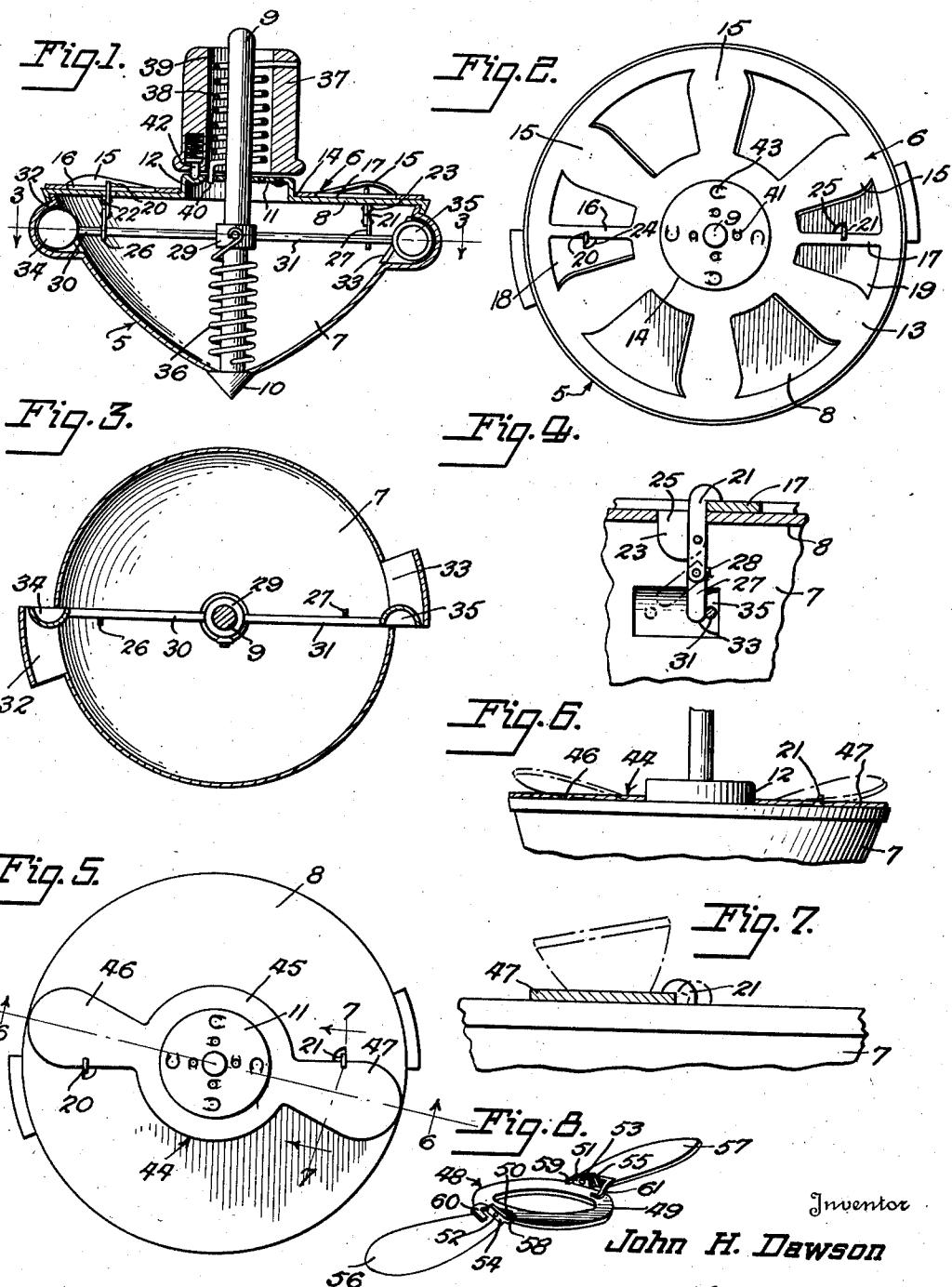
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## FLYING TOY

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## UNITED STATES PATENT OFFICE

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## FLYING TOY

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6 Claims. (Cl. 46—84)

This invention relates to an aerial toy in the form of a spinning top provided with a detachable toy propeller, and with means operable to release the propeller at a certain instant during the spin of the top to permit the propeller to rise automatically into the air at the instant of release.

The main object of the invention is to provide an amusement device, or toy, embodying an ordinary spinning top as one of its essential elements and which can be used in the manner of an ordinary spinning top to operate a toy propeller and cause it to rise to great heights in the air at the instant of release from the top.

Other objects of the invention will become apparent as the detailed description thereof proceeds.

In the drawing:

Figure 1 is a central vertical section through a preferred form of the invention;

Figure 2 is a top plan view of the device shown in Figure 1; with the spinning member removed;

Figure 3 is a horizontal section taken on the line 3—3 of Figure 1;

Figure 4 is a fragmentary section, to an enlarged scale, showing details of construction of a propeller latching mechanism;

Figure 5 is a top plan view of a modified form of the invention;

Figure 6 is a vertical transverse section taken on the line 6—6 of Figure 5;

Figure 7 is a fragmentary section, to a greatly enlarged scale, taken on the line 7—7 of Figure 5; and

Figure 8 is a perspective of a modified form of toy propeller.

Referring to the drawing, the toy comprises a spinning top designated generally by the reference numeral 5, and a toy propeller designated generally by the reference numeral 6. The top 5 includes a substantially conical casing 7 suitably secured at its base to a disk 8 having a spinning rod 9 extending through the center thereof and terminating in a spike 10 secured to the casing 7 at its apex.

The disk 8 is stamped to form an upwardly directed plate 11 bounded by an annular shoulder 12 coaxial with the spinning rod 9. A toy propeller of substantially the same diameter as disk 8, and formed from a disk 13 of sheet material, is provided at its center with a circular opening 14 fitting somewhat loosely around the shoulder 12. Lifting blades 15 are stamped out from the pro-

peller disk and are equiangularly spaced apart around the same.

A pair of latch strips 16 and 17 extend in alignment radially across apertures 18 and 19 formed by stamping out opposite propeller blades 15. When the propeller disk 13 is seated on the base 8, the strips 16 and 17 form keepers for the latches 20 and 21, respectively. These latches are pivoted between their ends on brackets 22 and 23 formed from disks 8 by stamping the same to provide the slots 24 and 25 through which the upper hook-ends of the latches project.

Latch operating members 26 and 27 are pivoted to the lower ends of latches 20 and 21, and are each provided with a stop 28, limiting the rotation of said member in one direction about their pivotal connections to said latches. A collar 29 is rotatably mounted on the spinning rod 9 within the casing 7 and a pair of rods 30 and 31 extend from said collar in alignment with each other and through slots 32 and 33 formed in the casing 7 near the upper end thereof. These rods are substantially parallel to the disk 8, and are provided at their outer ends with cups 34 and 35, respectively, which serve through air resistance to impart rotation to the collar 29, the rotation of which is yieldingly resisted by the coil spring 36 having one end thereof secured to the collar 29 and the other end secured to the lower end of the spinning shaft 9.

A cylindrical spinning member 37 is adapted to fit over the projecting upper end of the spinning rod 9, and to seat on the plate 11. A coil spring 38 is wound around the bore 39 of the member 37 and has its upper end secured to the member 37, while the lower end is provided with a downwardly turned projection forming a pin 40 adapted to fit into any of the apertures 41 formed concentrically around the axis of the pin 9. The lower end of the member 37 is also provided with a spring pressed plunger 42 adapted to seat in any of the apertures 43 formed in the plate 11 concentrically with the axis of the spinning rod 9.

In the operation of the device, the propeller disk 13 is first seated on the disk 8, with the latches 20 and 21 engaging the keeper strips 16 and 17, respectively. In this position, the latch operating members 26 and 27 are located, as shown in Figures 1 and 4, so as to contact with the edges of said latches having the stops 28 projecting laterally therefrom. The spinning member 37 is applied to the plate 11, as shown in Fig-

ure 1 of the drawing, and is used to impart rotation to the top as a whole in the usual manner.

As the top starts to spin, the air resistance against the cups 34 and 35 imparts rotation, through the rods 30 and 31, to the collar 29 and swings each of the latch operating members 26 and 27 from their normal vertical positions to the dotted line position shown in Figure 4 of the drawing. Continued rotation of the rods 30 and 10 31 causes these rods to move under and past the lower ends of the latch operating members 26 and 27, which then swing by gravity about their pivots to their normal vertical positions. As the speed of the top decreases, the air resistance decreases, and the tensioned spring 36 rotates the collar 29 and the rods 30 and 31 in the opposite directions so as to strike the rear edges of the latch operating members 26 and 27. Since the stops 28 prevent the latch operating members 20 26 and 27 from swinging out of alignment with the latches 20 and 21 in the direction of the stops 28, the return force of the rods 30 and 31 trips the latches 20 and 21 and releases them from the keeper strips 16 and 17, respectively. 25 When so released, the spinning action of the top and air resistance operating on the blades 15 of the propeller disk 13 causes the said disk 13 to be projected upwardly into the air.

In the form of the invention illustrated in Figures 5, 6 and 7, the top and its spinning mechanism is identical with that illustrated in Figures 1 to 4, inclusive. The modification resides entirely in the propeller 44, which comprises a ring 45 adapted to fit over the annular shoulder 12 on the disk 8. Propeller blades 46 and 47 extend radially in opposite directions from the aforesaid ring. The propeller 44 is made of thin Celluloid, or some similar material, sufficiently elastic to permit the blades to be distorted from their normal helical shape to lie flat on the plane surface of the disk 8 which constitutes the upper end of the top.

The normal helical shape of the propeller blades 46 and 47 is shown in Figure 6 of the drawing. When applied to the top prior to spinning, these blades 46 and 47 are twisted and bent downwardly at their outer ends to lie flat on the disk 8 and are then engaged by the latches 20 and 21 to maintain them in the same plane as the ring 45 during the initial spinning of the top. In the operation of this form of the invention, the propeller 44 is applied to the plane surface of the spinning top and its blades 46 and 47 are bent downwardly to lie flat on that plane surface. The latches 20 and 21 are moved into engagement with the adjacent edges of the propeller blade. The spinning member 37 is then applied to the plate 11, as shown in Figure 1 of the drawing, and is used to impart rotation to the top in the usual manner. As the top starts to spin, the air resistance against the cup 34 and 35 imparts rotation to the collar 29 and trips the latch operating members 26 and 27, as indicated by the dotted lines of Figure 4 of the drawing.

65 During this initial spinning, the propeller blades offer practically no resistance. As the rate of spin of the top decreases, the air resistance decreases and the spring 36 then rotates the collar 29 and causes the rods 30 and 31 to swing the latch operating members 26 and 27 in such manner as to trip the latches 20 and 21 and release them from the latched edges of the propeller blades 46 and 47. When thus released, the blades 46 and 47 assume their normal helical shape in 70 which the air resistance operates to cause the

propeller 44 to be projected as a whole upwardly into the air.

In the modification shown in Figure 8, the propeller 48 comprises a ring 49 adapted to fit around the shoulder 12 on the disk 8. Lugs 50 and 51 are turned up at diametrically opposite points of the ring 49 and are apertured to receive pivot pins 52 and 53, respectively, which pass through corresponding apertures provided in small flanges 54 and 55 formed on the inner end of propeller 10 blades 56 and 57, respectively. The flanges 54 and 55 are provided with stops 58 and 59 which extend over the ring 49 to limit the rotation in one direction of the propeller blades 56 and 57 about their pivot pins 52 and 53. Small leaf springs 60 and 61 are secured at one end of each to the propeller blades 56 and 57, respectively, and have their other ends bent into contact with the upper surface of the ring 49 in order to hold the propeller blades 56 and 57 in normal screw- 20 propeller position.

The form of propeller illustrated in Figure 8 is to be applied to the plane surface 8 of the top in the same manner as the propeller 44 shown in Figure 5 of the drawing. The operation with this 25 form of propeller is substantially the same as that involved in the operation of the propeller 44. The only difference in the two forms of propellers is that the blades 46 and 47 of the propeller 44 are made integral with the ring 45 and 30 are adapted to be distorted into the same plane as the said ring, whereas, the propeller blades 56 and 57 of the propeller 48 are pivoted to the ring 49 and are held yielding in normal operative position by means of the leaf springs 60 and 61. 35

This application is a continuation, in part, of my application Serial No. 178,165 filed December 4th, 1937 and allowed January 12th, 1938.

It is to be understood that the invention is not to be considered as limited to the particular details of construction disclosed herein, nor in any other manner except as indicated by the scope of the claims appended hereto.

What I claim is:

1. A spinning top, a propeller member seated 45 thereon, means for releasably latching said member to said top, and means operable by the successive increase and decrease of the speed of rotation of said top for releasing said member to effect projection of said member bodily into the 50 air.

2. A spinning top, a propeller member seated thereon, means for latching said member releasably to said top, means for spinning said top, and means operable by the successive increase and 55 decrease of the speed of rotation imparted by the spinning of said top to effect release of said latching means and the separation of said top and propeller member.

3. A spinning top comprising an inverted, conical base, a disk closing said base and dished at its center to form a supporting plate for a spinning member, a spinning rod extending axially through said plate and base, a propeller member seated on said plate, latches pivoted within said 60 base and extending through said plate to lock said member releasably to said plate, and means within said base operable by the successive increase and decrease of the speed of spinning of said top for releasing said latches to permit the 65 propeller member to be projected from the spinning top.

4. A spinning top having a flat upper surface, a disk seated on said surface and provided with propeller blades, means for releasably latching 70

said disks to said surface, and means within the top and operable by the successive increase and decrease of the speed of rotation thereof for effecting release of said latching means to permit said disk to rise bodily into the air from said top.

5. A spinning top, a propeller member seated thereon, and means operable by the successive increase and decrease of the speed of rotation of  
10 said top to cause said member to rise bodily therefrom.

6. A spinning top, a propeller member seated thereon, and means for latching said member releasably to said top, means for spinning said top, and means operated by the successive increase and decrease of the speed of rotation imparted by the spinning thereof to release said latching means and thereby permit said propeller to rise bodily into the air by the rotation thereof as imparted thereto by the spinning top.

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