

Nov. 30, 1971

FUMIHIKO NODA

3,623,262

TOP TOY

Filed Dec. 30, 1969

2 Sheets-Sheet 1

Fig. 1

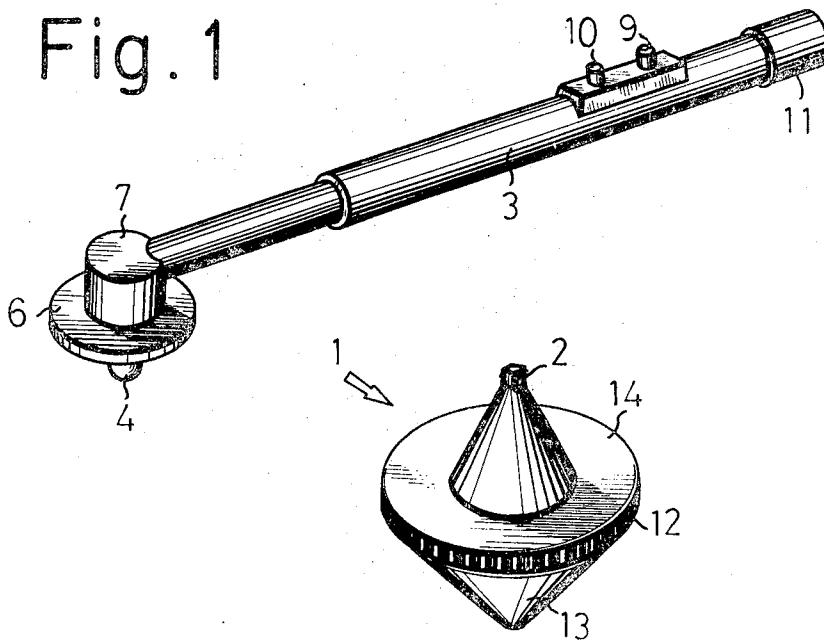
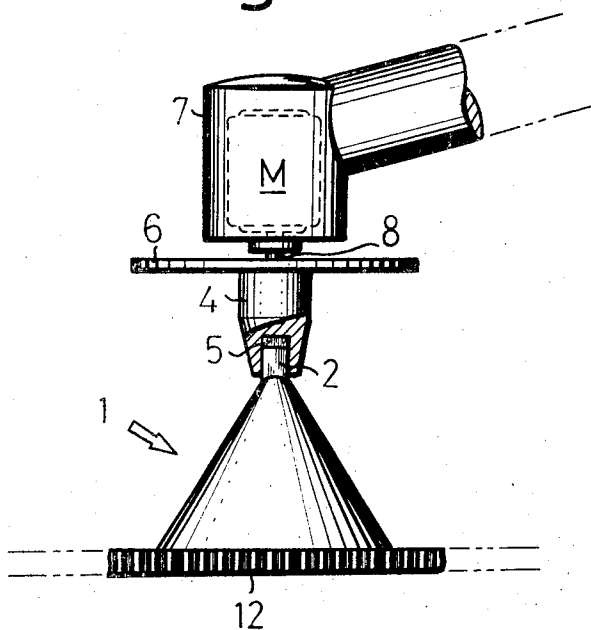


Fig. 2



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2 Sheets-Sheet 2

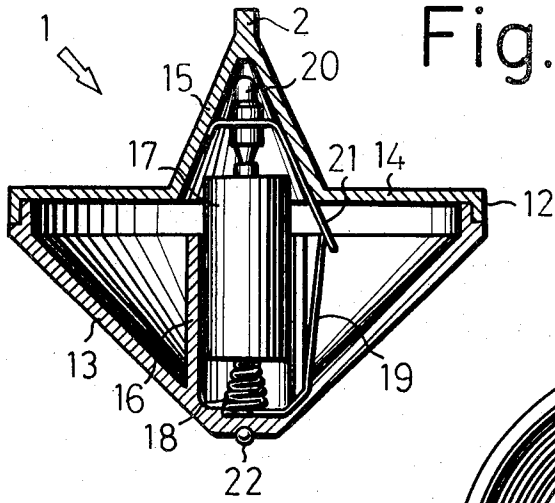


Fig. 3

Fig. 4

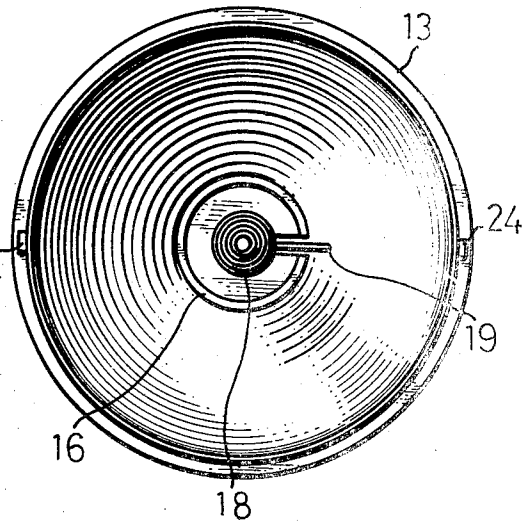


Fig. 6

Fig. 5

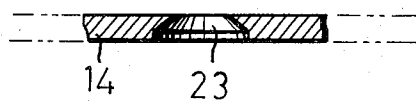
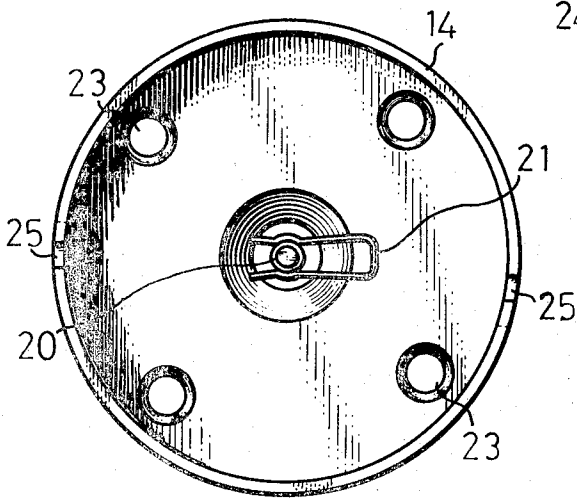
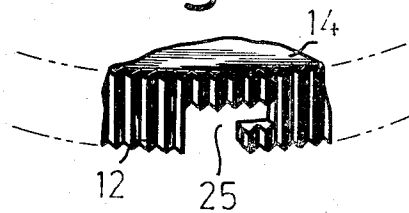


Fig. 7



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3,623,262
TOP TOY

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44/14,678, 44/14,679
Int. Cl. A03h 1/00

U.S. Cl. 46—72

4 Claims

ABSTRACT OF THE DISCLOSURE

A spinning top may be started by coupling it to the output shaft of an electric motor on a rod which carries a battery and reversing switches for the motor, and by uncoupling the top from the motor when it reaches a desired speed. When the top slows down, it may be accelerated by engagement of its periphery with a disc on the motor shaft while the motor rotates in a direction opposite to the original direction. A centrifugal switch in the top energizes a lamp when the top reaches a certain speed.

This invention relates to top toys. More particularly, the invention is concerned with a top toy which comprises in combination a top proper and drive arrangement for making the top spin.

Generally, a top is made to spin by means of a string which is wound around it and unwound with a sudden jerk.

A top which is made to spin by the aforementioned process cannot continue spinning for a prolonged period of time.

To enable the invention to be better understood, a preferred embodiment of the invention will be described with reference to the accompanying drawings.

In the drawings, like reference characters designate similar parts in all of the drawings.

FIG. 1 is a perspective view of a top and a drive arrangement jointly forming a top toy according to this invention;

FIG. 2 is a fragmentary side view, with certain parts being broken away of the apparatus of FIG. 1;

FIG. 3 is a sectional side view of the top;

FIG. 4 is a plan view of the top without its cover;

FIG. 5 is a bottom plan view of the cover and associated elements;

FIG. 6 is a fragmentary, sectional view, on an enlarged scale, of the cover; and

FIG. 7 shows a portion of the cover in side elevation.

In FIGS. 1 and 2, a top 1 is formed at its upper end with a coupling portion 2 of square shape. A rod-shaped drive arrangement 3 mounts at its forward end a casing 7 which contains an electric motor M. A rotary member 4 made of rubber or a soft synthetic resin composition and an energizing disc 6 are coaxially supported on the output shaft 8 of said electric motor M.

The rotary member 4 is formed with an opening 5 which can conformingly receive the coupling portion 2 of the top 1 with a force fit. Switches 9 and 10 control the directions of rotation of the motor M.

After the portion 2 of the top 1 is force fitted into the receiving opening 5 of the rotary member 4, the switch 9 is actuated to rotate the motor M in the normal direction. After a substantial speed is imparted to the top 1, the

2

forward end portion of the drive arrangement 3 is moved up and down a few times so as to release the coupling portion 2 from the rotary member 4, thereby leaving the top 1 to spin by itself as on the floor or the like.

When the spinning movement of the top 1 subsides the switch 10 is actuated to rotate. The energizing disc 6 is then brought into contact with the circumferential surface of the spinning top 1.

The tube-like body of the drive arrangement 3 encloses a dry cell battery which can be replaced after removing a stopper 11 at the rear end of the tube-like body. The outer edge of the top 1 has a rough surface 12 for contacting the outer circumferential surface of the energizing disc 6.

As shown in FIGS. 3 to 5, the top proper 1 comprises a conically tapering lower body 13, and a transparent or semi-transparent cover 14 formed in its central portion with a conical illumination portion 15.

The top 1 is hollow. A vertically disposed shell 16 in the center of the body 13 receives a dry cell 17. A contact spring 18 makes contact with one side of said cell 17. A movable contact 19 is formed integrally with said spring. The movable contact 19 is constructed such that as the top 1 spins, the upper portion of the movable contact 19 is moved outwardly by centrifugal forces till it is brought into contact with a fixed contact 21. A miniature electric bulb is disposed in said illumination portion 15 of said cover 14. The electric bulb 20 has a lower contact which is maintained in engagement of its central contact with the positive terminal of the cell 17. Mounted on the miniature electric bulb 20 is the fixed contact 21. It will be appreciated that centrifugal forces will cause the miniature electric lamp 20 to be turned on. As the spinning movement of the top proper 1 subsides the movable contact 19 is returned to its original position thereby automatically turning off the electric lamp.

A spherical member 22 shown in FIG. 3 is rotatably supported in the bottom of the lower body 13 so that the top spins smoothly. Sound producing openings 23 shown in FIG. 5 are formed in the marginal portion of the cover 14. Small projections 24 shown in FIG. 4 on the circumferential surface of the lower body 13 are adapted to be engaged with hook-shaped slots 25 of the cover 14 for mounting the cover 14 on the lower body 13. When the cover 14 is applied to the lower body 13 as aforementioned, the positive terminal of the cell comes into contact with the lower end of the miniature electric bulb 20.

While the invention has been shown and described with reference to a preferred embodiment, it is to be understood that the embodiment is shown and described only by way of illustration, and that many changes and modifications may be made therein without departing from the spirit and scope of the appended claims.

What I claim is:

1. A toy comprising, in combination:

(a) a top having an axis of rotation and a peripheral surface about said axis; and

(b) a drive arrangement including

(1) a body portion,

(2) a motor mounted on said body portion,

(3) a shaft on said body portion and driven by said motor,

(4) a disc member mounted on said shaft and having an exposed peripheral portion adapted to engage said peripheral surface,

3

(5) releasably engageable coupling means on said shaft and on said top for rotating said top when said shaft is driven by said motor, and

(6) reversing means cooperating with said motor for reversing the direction of rotation of said shaft.

2. A toy as set forth in claim 1, wherein said motor is electrically operated, said reversing means including switch means in circuit with said motor for reversing said direction of rotation.

3. A toy as set forth in claim 2 further comprising a source of electric current carried by said body portion in circuit with said switch means and with said motor.

4. A toy as set forth in claim 1 wherein said top carries an electrically operated light source, a source of electric current, and centrifugally operated switch means in circuit with said sources for energizing said light source at a predetermined rotary speed of said top.

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References Cited

UNITED STATES PATENTS

1,503,006	7/1924	Rause	-----	46-65
1,639,526	8/1927	Mayer	-----	46-65
2,611,995	9/1952	Krapp	-----	46-65
3,082,574	3/1963	Hellman	-----	46-67
3,224,142	12/1965	Pawalka et al.	-----	46-72
3,269,055	8/1966	Gordon	-----	46-72

OTHER REFERENCES

Denmark Plastics Inc. (Jet Speed Spinner), Mar. 10, 1966.

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U.S. Cl. X.R.

46-279