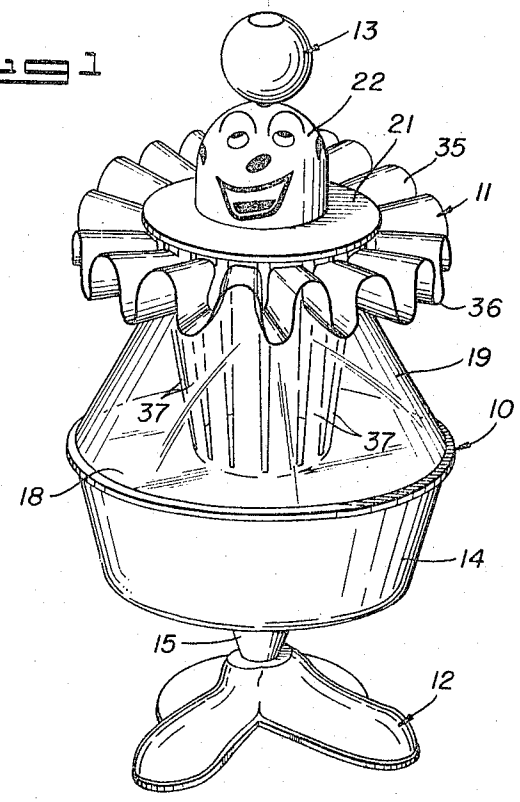
Oct. 24, 1967 S. REYNOLDS 3,348,334

SPINNING TOY HAVING AN EXTENSIBLE SKIRT

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Fig 1



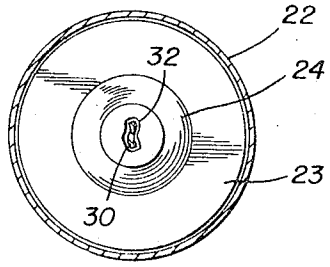
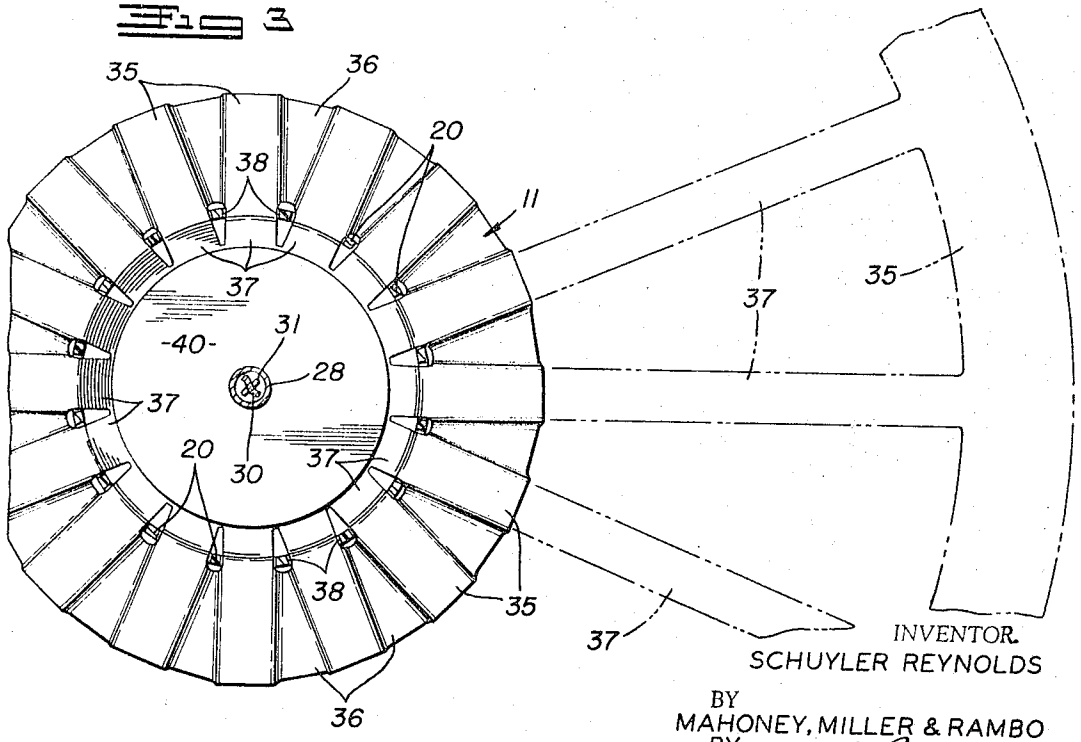


Fig 4

Fig 3



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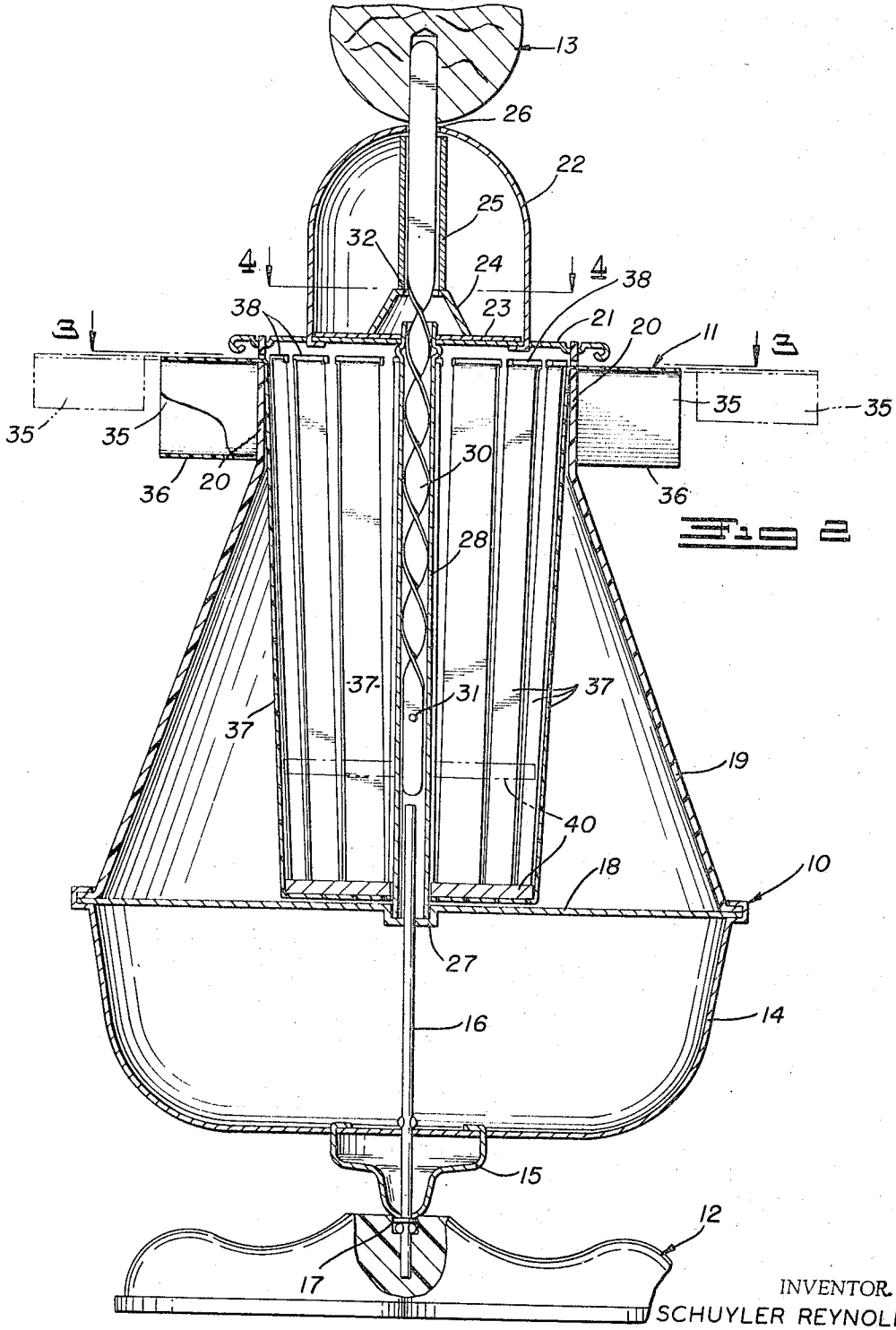


Fig 2

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SPINNING TOY HAVING AN EXTENSIBLE SKIRT

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2 Claims. (Cl. 46—119)

This invention relates to a spinning toy having an extensible skirt. It has to do, more specifically, with a spinning toy, for example, a plunger-type top, which is provided with a flexible skirt that is movable from a normally retracted position to an expanded or extended position by means of centrifugal force created by the spinning of the toy.

Preferably, this invention is embodied in a toy of the spinning type wherein the spinning may be accomplished in various ways. The top preferably takes the form of an animate figure with some article of apparel which it is desired to extend or expand to give a swirling or pirouette effect. In the example shown in the drawings, the figure simultated is that of a clown and the extensible skirt may correspond to the collar of his costume but the figure could be, for example, that of a ballerina dancer, with the extensible skirt corresponding to the skirt of the dancer's costume. However, many other figures with varying costumes may be simulated with the extensible skirt corresponding to various portions of the costume. In fact, it is not necessary to simulate any figure or costume since the expansion and contraction of the flexible skirt, in accordance with varying centrifugal forces at varying speeds of spinning the toy, will produce an interesting effect to be observed.

In the particular example shown in the drawings, the top is of the type wherein spinning of the body thereof is accomplished by axial movement of a spiral screw through a relatively rotatable nut or collar member which is fixed to the body and is rotated by the screw interengaging therewith. The body carries the expansible skirt in a special manner so that it expands and contracts in accordance with the speed of spinning of the body.

The primary object of this invention is to provide a centrifugally extensible, flexible skirt member for a spinning toy, wherein the skirt member adds to and enhances the curiosity and attractiveness of the toy.

In the accompanying drawings, a plunger-type top of the screw-operated type is disclosed as one example in which my invention can be embodied and in these drawings:

FIGURE 1 is a perspective view of the complete top.

FIGURE 2 is an enlarged vertical sectional view taken axially through the top, illustrating in full lines the normal retracted position of the flexible skirt and in broken lines, a partially extended position of the skirt.

FIGURE 3 is a horizontal sectional view taken along line 3—3 of FIGURE 2 with an indication in broken lines of a segment of the skirt in extended condition.

FIGURE 4 is a horizontal sectional view taken along line 4—4 of FIGURE 2.

With reference to the drawings, I have illustrated the spinning top as having the figure of a clown including a body **10** with a collar surrounding its upper end in the form of an extensible and retractable flexible skirt **11**. The body **10** is mounted for rotation about its axis on a foot structure or base **12** and is rotated by means of a screw-operating knob or handle **13** at the top thereof.

The body **10** is preferably made of cooperating sections to facilitate manufacture and assembly and the material thereof is preferably a combination of plastic and sheet metal. The body is shown as comprising the lower larger diameter or bowl-like hollow section **14** which has a downwardly extending bearing section **15** fixed thereto for rotation together. The base **12** is also preferably of semi-flexible plastic and has upstanding therefrom a spindle **16** which is fixed therein, and which carries a thrust-washer **17** engaged by the lower pointed end of the bearing **15**. The spindle **16** extends upwardly through the bearing **15** and the body section **14** and through a central bearing opening in a disc-like wall **8** extending across the section **14** at its upper edge. The upper edge of the body section **14** is fixed to the lower edge of a hollow frusto-conical body section **19** which is preferably of clear rigid plastic and which has at its upper end an upstanding cylindrical collar section **20**. The skirt **11** surrounds and cooperates with this collar section. Across the top of the section **20** and secured to the upper edge thereof is a disc-like cover plate or wall **21**. Fixed to this wall and upstanding therefrom is a dome-like member **22**.

Disposed on the upper surface of the plate **21**, within the lower portion of the dome-like housing member **22**, is a disc **23** of relatively soft material such as cardboard. Resting on this disc is the lower end of a frusto-conical nut or ratchet member **24** which is preferably formed with a roughened or serrated lower edge to frictionally engage the cover plate or wall **21** through the disc **23**. A cylindrical guide tube **25** of cardboard or the like is positioned between the upper wall of the ratchet member **24** and the dome-like cap member **22**. The upper end of the tube **25** aligns with a central opening **26** in the top of the dome-like member **22**. Concentric with the axis of the body **10** is a vertical sleeve or tube **28** which extends between the vertically spaced horizontal walls **18** and **21**. The lower end of this tube extends into an upwardly opening socket **27** formed concentrically in the wall **18** and its upper end extends through the wall **21** and associated disc **23** and projects into the ratchet member **24**. The spindle **16** extends upwardly through the socket **27** and the plate **18** is rotatable relative thereto. The tube **28** is nonrotatable relative to the walls **18** and **21**. The tube **28** is fixed in the walls **18** and **21** for rotation therewith and therefore with the entire body **10** relative to the supporting spindle **16**.

The actuating knob **13** is nonrotatably fixed on the upper end of the actuating screw **30** which may be made from a flat strip of metal helically twisted about its axis. This screw normally extends downwardly through the tube **25**, ratchet member **24** and downwardly through the tube **28** to a point adjacent the upper end of the spindle **16** which projects upwardly into the tube **28** a substantial distance. At a point spaced above the lower extremity of the screw **30**, it is provided with a transversely extending stop pin **31**. The ratchet member **24** is formed with a transverse top wall which has a slot **32** of proper size and shape to permit the twisted part of the screw **30** to pass therethrough.

The parts so far described are the usual parts provided for a plunger-type top and it operates in the usual way. To spin the top the knob **13** is engaged to pull the screw **30** upwardly. There is a slight clearance between the upper end of the guide tube **25** and the associated upper end of the dome **22** so that friction between the screw **30** and the walls of the slot **32** will lift the ratchet member **24** out of frictional engagement with the plate **21** and permit the member **24** to ratchet within the dome **22** when the knob **13** and screw **30** are drawn upwardly. The screw **30** can be pulled upwardly until the stop pin **31** engages the ratchet member **24** and at this time the lower end of the screw will still extend downwardly, into the upper end of the tube **28**. Thus, on the upward stroke of the screw **30**, the body **10** is not rotated, but if the screw **30** is now pushed downwardly by means of the knob **13**, the

body will be rotated. Pushing downwardly on the screw **30**, causes it to move downwardly through the slot **32** and, consequently, to rotate the plate **21** and, therefore, to rotate the entire body **10** to which the plate is fixed. The body will rotate about the axis of the spindle **16** upstanding from the base **12** which supports it. The tube **28** at the axis of the body will turn relative to the screw **30**. Continued strokes of the screw will rotate the body **10** at high speed.

As previously indicated, according to this invention, the skirt **11** is applied to the body **10** so that it will extend and contract in accordance with varying degrees of centrifugal force created by rotation of the body **10** at various speeds. The normal constricted position of the skirt is illustrated in FIGURE 1 and by the full line positions of FIGURES 2 and 3. The skirt **11** may be of various flexible sheet materials, such as plastic film, and comprises an outer annular band portion **35** which, when expanded to its maximum diameter, is in a flat plane but when constricted into its normal position around the collar portion **20** of the body **10** is made up of a series of angularly spaced downward folds, pleats or dips **36**, the inner ends of which engage the outer cylindrical surface of the portion **20**.

To control the extension and retraction or constriction of the band portion **35**, the band is provided with a series of angularly spaced, flexible arms or webs **37** which are arranged relative to the band **35** much as the spokes of a wheel (FIGURE 3). These webs **37** are preferably formed integral with the annular band portion **35**, being formed from a flat piece of material such as flexible plastic, and their outer ends are connected to the band at angular positions corresponding to the tops of the folds. These webs **37** extend inwardly through horizontal slots **38** (FIGURE 2) which are formed at angularly spaced intervals in the collar portion **20** of the body **10**. The webs **37** extend downwardly from the slots and are anchored at their lower ends to a weight collar **40** which normally is located just above the wall **18** in spaced relationship thereto. This weight collar **40** is mounted on the central tube **28** for guided vertical sliding movement therealong.

Normally with the toy not spinning, the skirt **11** will be retracted or constricted around the body collar section **20**. The weight **40** suspended from the webs **37** will draw the skirt inwardly to this position which is indicated in full lines in FIGURES 1 to 3. As the body **10** and its skirt **11** start to spin, the centrifugal force acting on the outer band portion **35** of the skirt overcomes the weight **40** and causes it to slide upwardly along the tube **28**. This permits the skirt **11** to expand radially outwardly and to start to flatten out, as indicated by the broken line position of FIGURE 2. As the centrifugal force increases, the skirt **11** will gradually expand until the band portion **35** thereof is substantially in a flat plane along with the major portions of the webs **37** which at this time will extend radially, this latter condition being indicated in broken lines in FIGURE 3. At this time, the weight **40** will be raised to a level approaching that of the radial slots **38**.

As the spinning of the body **10** decreases in speed, the weight **40** will start to slide downwardly by gravity along the tube **28** thereby exerting an inward pull on the webs **37** to pull the band portion **35** towards its innermost folded or constricted position of minimum extension. The extension and retraction of the skirt **11** in accordance with the speed of rotation of the body **10** will provide a pleasing effect to be observed during spinning of the top and this effect will be enhanced by having the body portion **19** transparent so that movement of the weight **40** and associated webs **37** can also be observed.

According to the provisions of the patent statutes, the principles of this invention have been explained and have been illustrated and described in what is now considered to represent the best embodiment. However, it is to be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

Having thus described this invention, what is claimed is:

1. In a spinning toy; a substantially hollow body rotatable about a substantially vertical axis and including an axially disposed, substantially vertically arranged guide member; a weight mounted for free vertical sliding movement on said guide member; and a skirt of flexible, sheet material having a continuous outer band portion encircling said body and a plurality of inwardly projecting webs extending inwardly of said body and secured to said weight, said weight being arranged normally on said guide member to draw the webs of said skirt inwardly and downwardly into said body and to a position at which the outer band portion of said skirt occupies a relatively retracted position of encirclement about said body, but said weight being movable upwardly on said guide member in response to centrifugal forces acting on said skirt during relatively high speed rotation of said body to permit the outer band portion of said skirt to move outwardly by centrifugal force to a relatively extended position of encirclement about said body.

2. A spinning toy as defined in claim **1**, wherein said body is formed in the upper portion thereof with a plurality of radially outwardly opening slots through which the webs of said skirt are freely slidable, and wherein the outer band portion of said skirt is of annular, circular form and the webs of said skirt project radially inwardly from said outer band portion.

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