Oct. 27, 1925. 1,559,232

J. J. ESPER

SPINNING TOP

Filed May 31, 1924

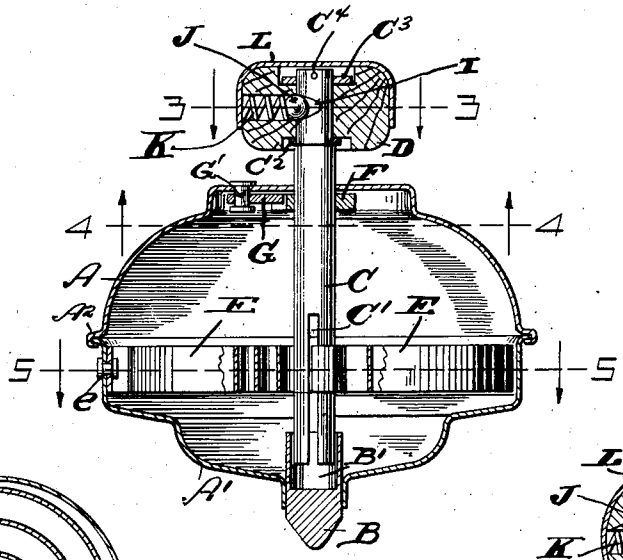


FIG. 1.

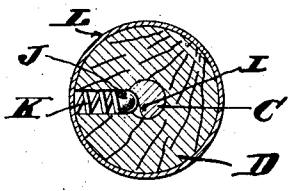


FIG. 3.

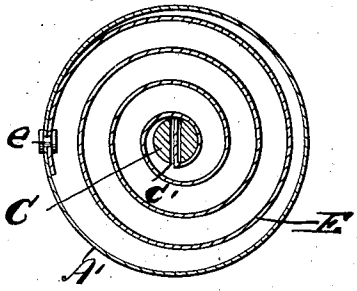


FIG. 5.

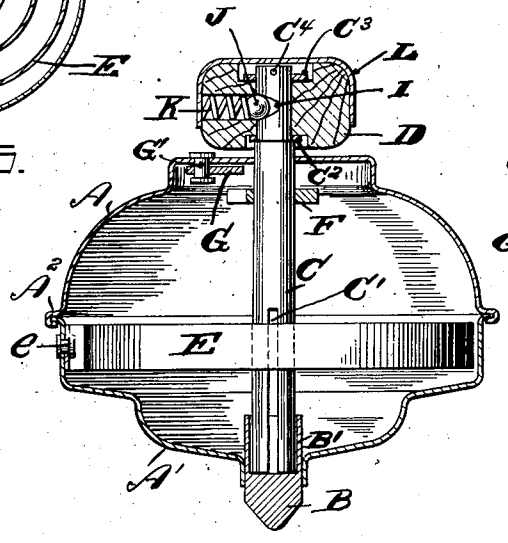


FIG. 2.

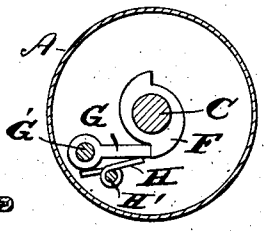


FIG. 4.

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Patented Oct. 27, 1925. 1,559,232

UNITED STATES PATENT OFFICE.

JOHN J. ESPER, OF DEARBORN, MICHIGAN.

SPINNING TOP.

Application filed May 31, 1924. Serial No. 717,026.

To all whom it may concern:

Be it known that I, JOHN J. ESPER, citizen of the United States, residing at Dearborn, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Spinning Tops, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to spinning tops shown in the accompanying drawings and more particularly described in the following specification and claims.

The object of this invention is to provide a top, simple in construction and operation, embodying a spring concealed therein adapted to actuate the top upon manually turning a knob fitted to a longitudinally movable spindle rotatable within the top to which the spring is connected.

A further object of the invention is to provide means for holding the spring under tension until manually released by the operator shifting the spindle longitudinally upon setting the top upon the floor, or other support on which he desires to spin the same.

A further object of the invention is to provide means by which the knob mounted on the end of the spindle may be automatically released from operative engagement with the spindle when the latter is shifted longitudinally to release the ratchet wheel controlling the rotation of the top, thereby overcoming any tendency to fracture the spring due to the spindle being held by the operator against the expanding action of the operating spring.

A further object of the invention is to construct a top in which the operating and controlling mechanism are hidden within the body of the top and the knob mounted on the end of the spindle, thereby concealing these parts from view that they may not be tampered with and producing a toy of neat and finished appearance.

With the foregoing and other objects in view which will appear as the description proceeds the invention further resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes may be made in the precise embodiment of the invention herein disclosed without departing from the spirit of the same.

In the drawings accompanying this specification:

Figure 1 is a vertical cross-sectional view through the top showing the spindle to which the driving spring is attached and on which is mounted a ratchet wheel engaged by a dog whereby the operator may wind the spring and secure the same while under tension.

Figure 2 is a similar view showing the spindle shifted longitudinally thus releasing the ratchet wheel from the controlling dog that the top may be actuated by the driving spring.

Figure 3 is a horizontal cross-sectional view through the knob and the dog engaging the spindle, taken on or about line 3—3 of Figure 1.

Figure 4 is a horizontal cross-sectional view through the body of the top, taken on or about line 4—4 looking toward the ratchet wheel and dog, as indicated by the arrows.

Figure 5 is a cross-sectional view through the body of the top on a reduced scale showing the driving spring connected with the body of the top, its inner end being bent to project through a longitudinal slot formed in the spindle.

Referring now to the letters of reference placed upon the drawings:

A, A^1 denote the body of the top preferably formed of sheet metal, connected together by an overlapping or other joint A^2.

B, indicates a tapering pin provided with a cylindrical socket B^1 extending into the body of the top. C, represents a longitudinally movable and rotatable spindle, the lower end of which projects into the socket B^1 of the pin B, its upper projecting end being fitted with a knob D for manually rotating the spindle.

E, designates a helical spring, the outer end of which is riveted to the wall of the top as indicated at *e*, its inner end projecting through a longitudinal slot C^1 formed in the spindle C.

Instead of forming the spindle with an elongated slot to provide for its movement over the spring, any other suitable construction may, of course, be employed for connecting the spring with the spindle.

F, denotes a ratchet wheel secured to the

spindle adapted to be engaged by a dog G, pivoted to a stud G^1, supported in the upper wall of the top.

H, indicates a spring coiled on a supporting pin H^1, attached to the wall of the top,—the ends of the spring bearing upon the dog G, that the latter may be maintained in yieldable engagement with the ratchet wheel.

The spindle C at its upper end is relatively smaller in diameter at the point where it passes through the knob D, which is counterbored below to receive a washer C^2 mounted upon the spindle and overlapping the wall of the knob.

C^3 represents a washer fitted to the upper end of the spindle and lodged in the counterbore formed on the upper side of the knob. C^4 designates a cotter pin extending through the spindle and overlapping the washer. The spindle within the knob is grooved as indicated at I to form a shoulder or ratchet tooth, to receive a ball-dog J, yieldingly forced to the limit of its movement by a spring K housed in a bore formed in the knob.

L, denotes a sheet metal cap fitted to the knob adapted to receive the thrust of the spring K, and to cover the upper counterbore in the knob and the end of the spindle, thereby giving the knob a neat and finished appearance.

Having now indicated the several parts by reference letters the construction and operation of the device will be readily understood.

To wind the top the operator grasps the body portion in one hand and the knob in the other, pulling the spindle outwardly until the ratchet wheel F contacts with the inner wall of the top, as indicated in Figure 1, it is then in position to be engaged by the dog G,—the operator may then "wind up" the spring. Upon the completion of the winding operation the operator while still grasping the knob forces the pointed end of the tapering pin upon the floor or other surface on which the top is to be spun. This action causes the spindle to move downwardly releasing the ratchet wheel F, from engagement with the dog G, whereupon the top will spin on its pivot pin as will be readily understood.

The spring actuated dog J—concealed in the knob—serves to connect the knob with the spindle in order that the latter may be turned to wind the spring. Upon the spindle being shifted longitudinally—as before explained—to release the ratchet gear F from engagement with the dog G, the knob will be free to turn upon the spindle even if still held by the operator, without danger of breaking the spring. This will be readily apparent from the fact that when the spring is wound up by clockwise rotation of the spindle through the manual operation of the knob and the ratchet wheel F is disengaged from the pawl G by the longitudinal movement of the spindle, the spindle will be rotated counterclockwise with respect to the knob by the action of the spring so that if the knob be held by the operator the ratchet ball J will not interfere with this clockwise rotary movement of the spindle under the action of the spring E but will automatically operate to release the spindle and permit such rotation. When the ratchet wheel F is in engagement with the pawl G and it is desired to wind up the spring the knob is grasped by the operator and the top is held by one hand while the knob is rotated clockwise with the other hand. This will rotate the spindle under the action of the knob and the spindle and spring will be held against backward movement by the ratchet wheel F and pawl G. In this manner the top may be wound up as tightly as desired and when it is desired to spin the top the spindle is shifted longitudinally to disengage the ratchet wheel from the pawl and the top will operate as heretofore explained.

Having thus described my invention what I claim is:

1. In a device of the character described; a body portion fitted with a pivot pin; a longitudinally movable and rotatable spindle extending through the wall of the top and supported at its inner end upon the pivot pin, the outer end of the spindle being fitted with a knob for manually rotating the latter; a helical spring having its outer end connected with the wall of the top and its inner end with the spindle; a ratchet wheel mounted upon the spindle, and a dog adapted to engage the ratchet wheel, whereby the spring may be held under tension while being manually wound, said spindle being adapted to be manually shifted to release the ratchet wheel from the engaging dog, whereby the spring may actuate the top, and mechanism for clutching the knob to the spindle when the knob is manually rotated and for unclutching the spindle from the knob when the spindle is actuated by the helical spring.

2. In a device of the character described; a body portion fitted with a tapering pin having a socket at its upper end; a rotatable and longitudinally movable spindle having one end extending into said socket, the other end of the spindle extending above the body of the top; a knob fitted to the upper end of the spindle for manually rotating the latter; a helical spring, having its outer end secured to the body of the top and its inner end projecting through an elongated slot in the spindle for engagement with the latter; a ratchet wheel secured to the spindle; a spring actuated dog adapted to engage the

ratchet wheel upon manually shifting the spindle in one direction and to release the ratchet wheel upon shifting the spindle in the opposite direction; means adapted to connect the knob with the spindle for winding the spring and to be automatically released therefrom upon the top starting to spin, without removing the knob from the spindle.

3. In a device of the character described; a chambered body portion provided with a pivot pin having a socket to receive the end of a spindle; a longitudinally movable and rotatable spindle having one end fitted into said socket and its opposite end extending through the wall of the top; a knob fitted to the projecting end of said spindle; a helical spring housed within the chambered body portion secured at one end to the wall of the top its opposite end projecting through an elongated slot formed in the spindle; a ratchet wheel secured to said spindle adapted to limit the movement of the spindle in one direction by contact with the wall of the chambered body portion; a spring actuated dog adapted to engage said ratchet wheel when the spindle is manually shifted in one direction and to be released from engagement therewith upon shifting the longitudinally movable spindle in its opposite direction; a knob fitted to the projecting end of the spindle provided with means for automatically engaging the spindle, whereby the latter may be manually rotated to wind the helical spring and for releasing the spindle from engagement with the knob upon the top being rotated by said helical spring, without removing the knob from the spindle.

4. In a device of the character described, a body portion, a rotatable, longitudinally movable spindle mounted in the body portion, a helical spring connected at one end with the body portion and at the other end with a spindle, ratchet mechanism for holding the spring under tension while being manually wound by the spindle, a knob permanently mounted on the upper end of the spindle, and clutch mechanism for clutching the knob to the spindle when the knob is manually rotated for winding the spring, said clutch mechanism being arranged to unclutch the spindle from the knob when the spindle is actuated by the spring.

In testimony whereof, I sign this specification.

JOHN J. ESPER.