

No. 652,593.

Patented June 26, 1900.

J. COLLINS.  
SPINNING TOP.

(Application filed May 26, 1899.)

(No Model.)

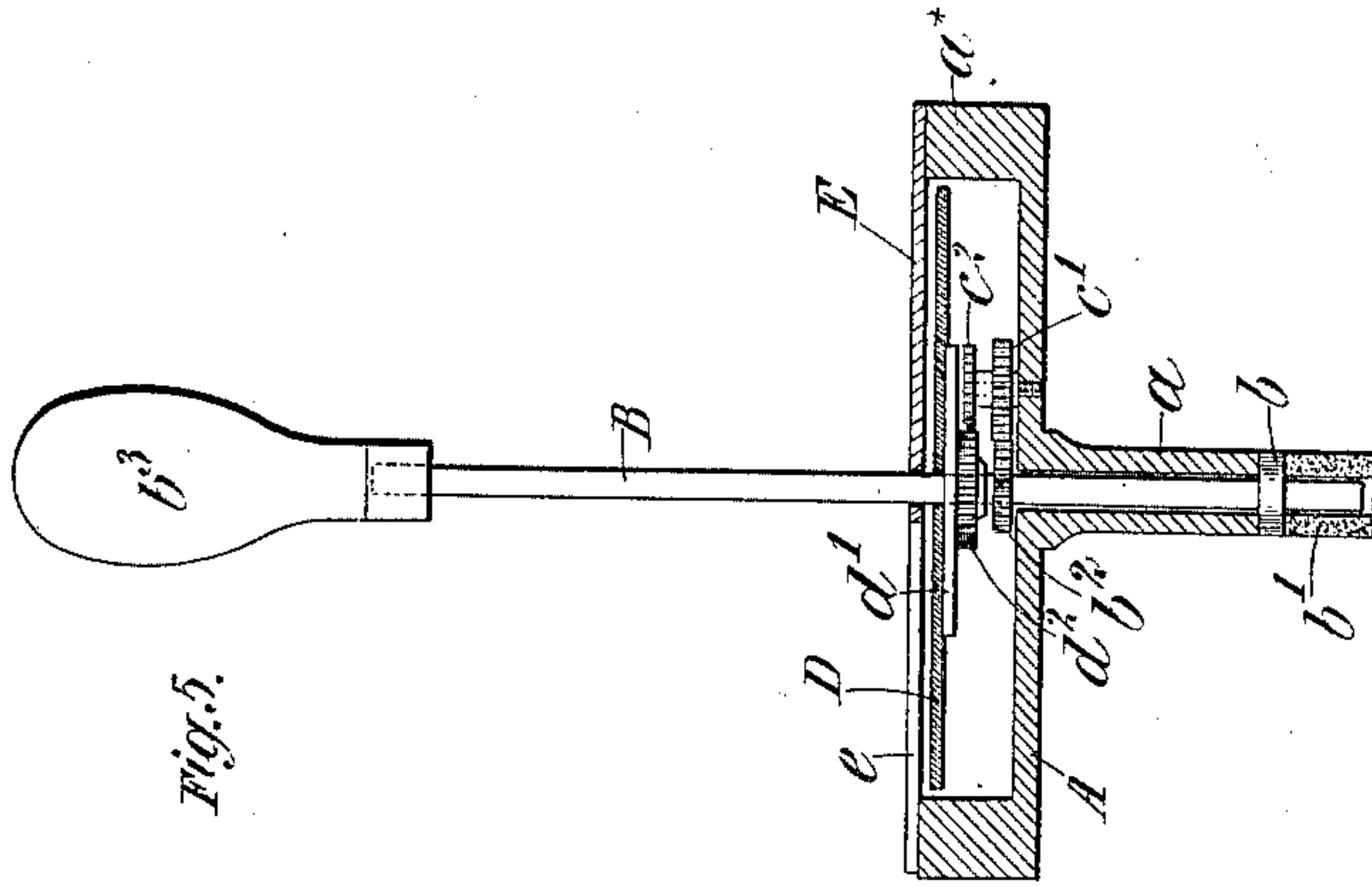


Fig. 5.

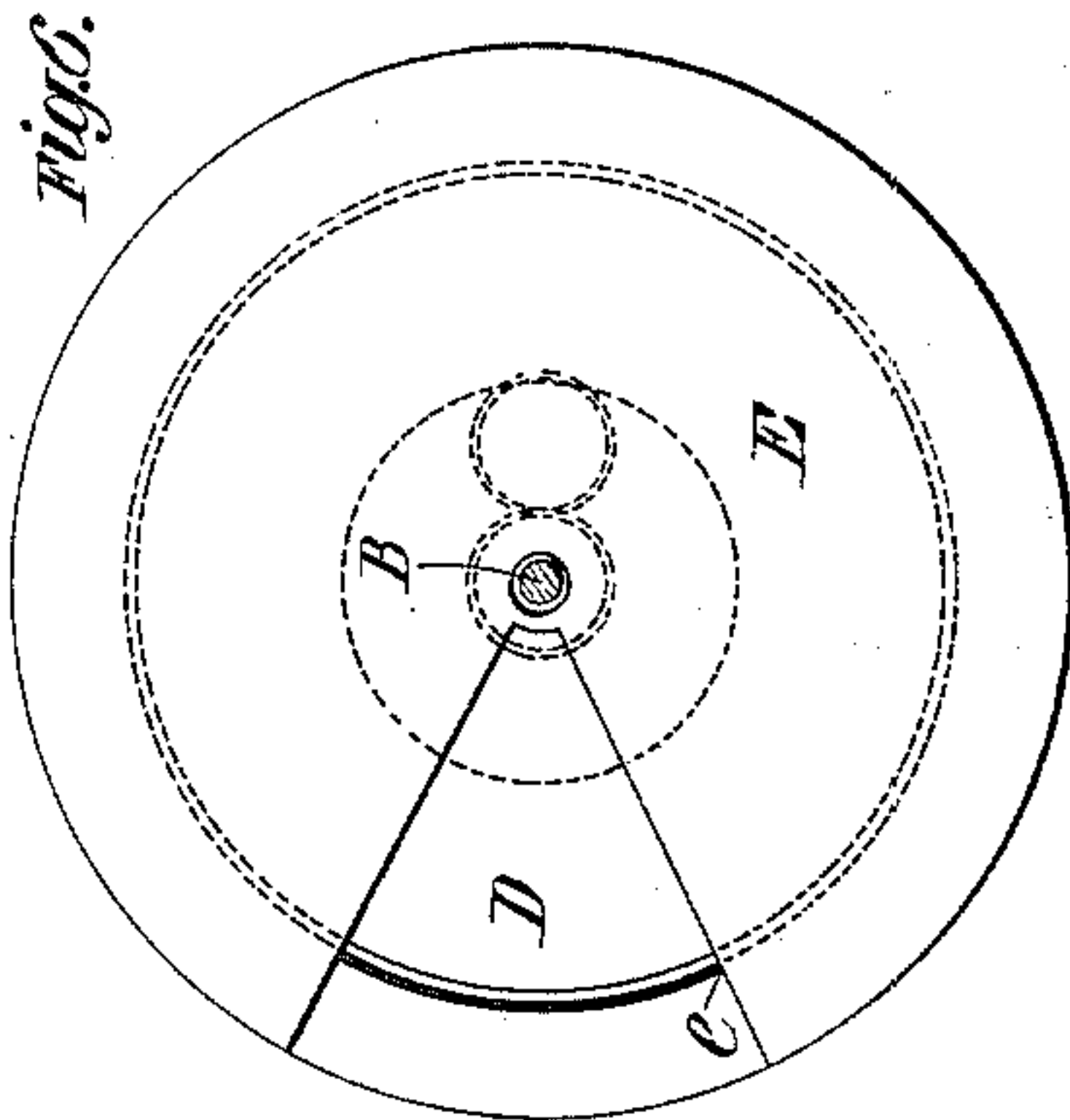


Fig. 6.

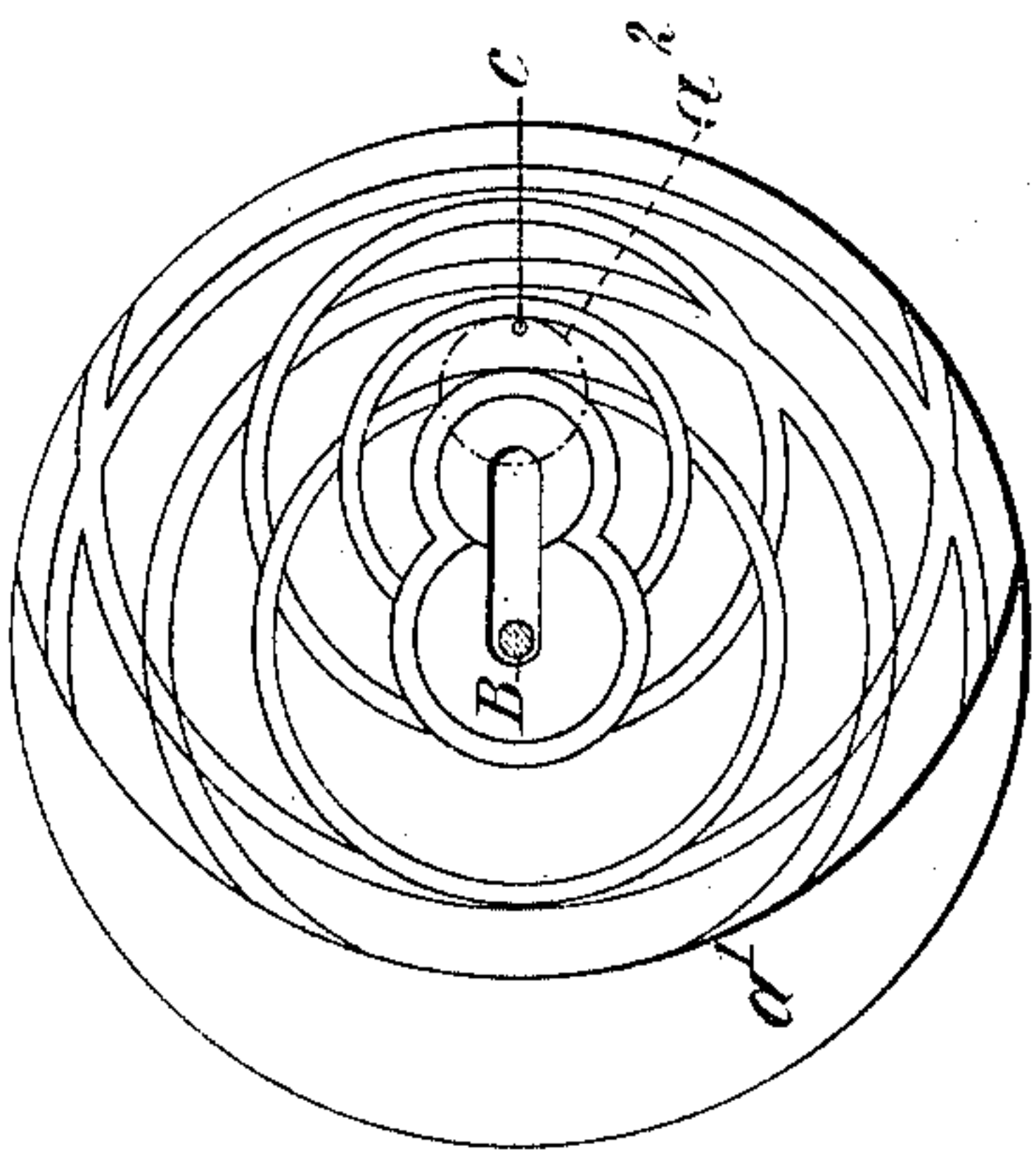


Fig. 3.

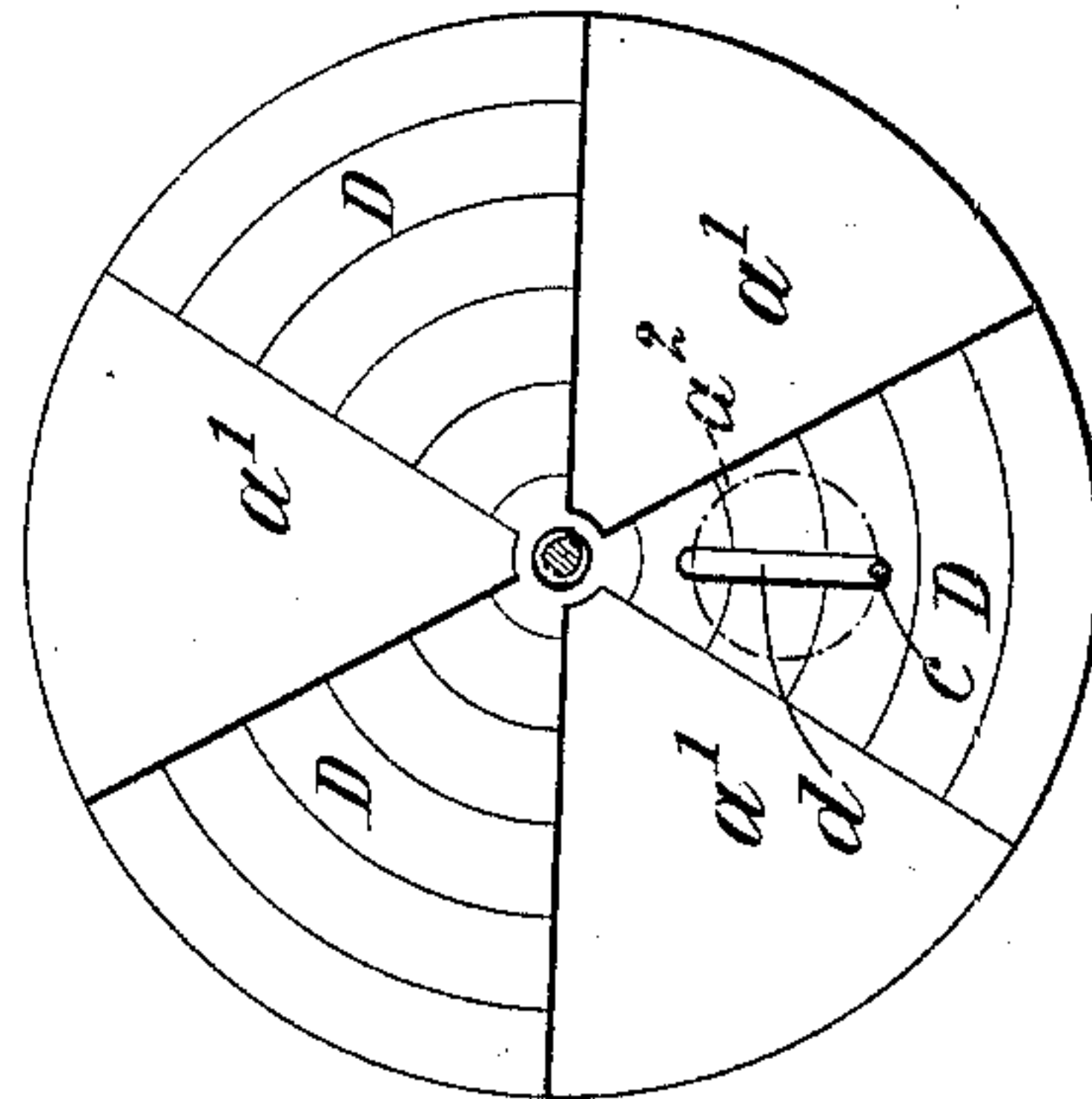


Fig. 4.

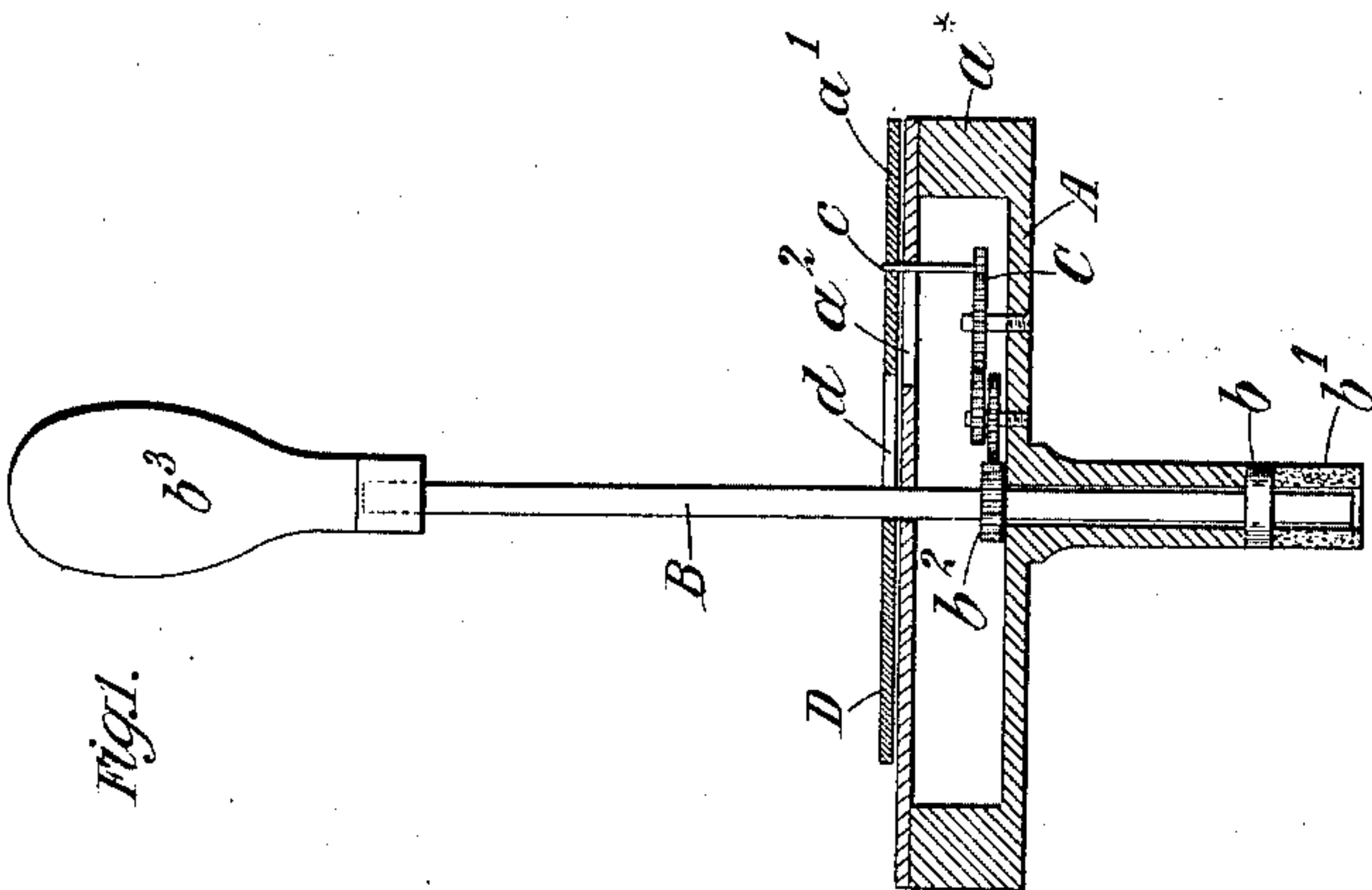


Fig. 1.

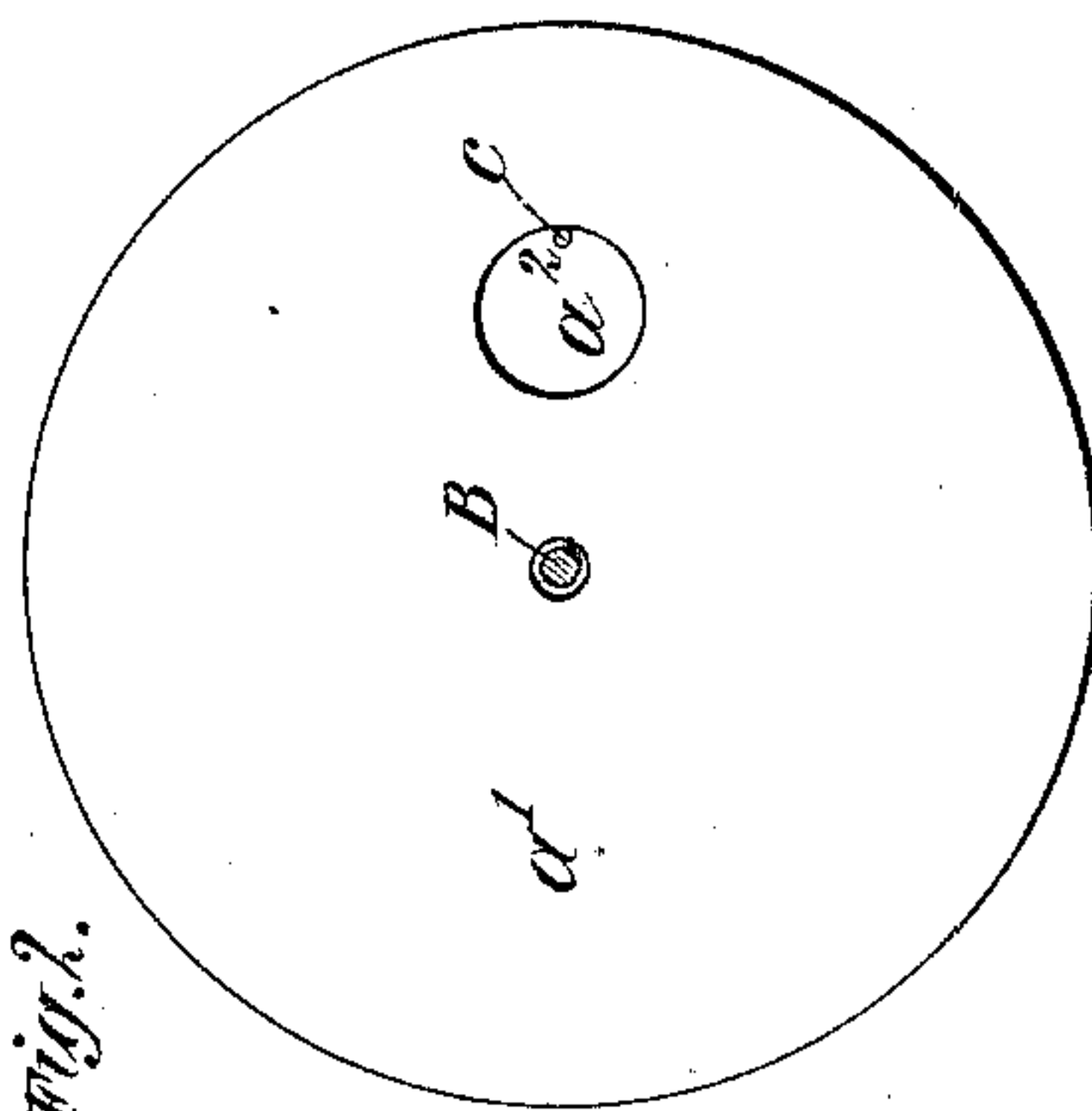


Fig. 2.

Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN COLLINS, OF LONDON, ENGLAND.

## SPINNING-TOP.

SPECIFICATION forming part of Letters Patent No. 652,593, dated June 26, 1900.

Application filed May 26, 1899. Serial No. 718,450. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN COLLINS, cycle-fitter, a subject of the Queen of Great Britain, residing at 172 Maple road, Penge, London, England, have invented a Spinning-Top for Exhibiting Automatic Variations in Color or Pattern, of which the following is a specification.

This invention relates to spinning-tops, and has for its object a new and improved spinning-top having novel means for exhibiting mechanically or automatically variations in color, pattern, &c.

In order that my invention may be clearly understood and readily carried into effect, I will now proceed to describe the same fully in connection with the accompanying drawings, in which—

Figure 1 is a sectional elevation of a top constructed according to my invention. Fig. 2 is a plan of the disk  $a'$ . Fig. 3 is a plan of the top with the handle removed. Fig. 4 is a plan of the top with the handle removed, showing a variation of the color or pattern disk. Figs. 5 and 6 are sectional elevation and plan, respectively, showing a modification of the pattern-disks.

A is a rotary cup having a weighted rim  $a^*$ .

$a$  is a winding-drum formed on or attached to the cup concentrically therewith. B is a stationary stem or axle passing through the center of the said winding-drum  $a$  and cup A.

$b$  is a stop fixed to the axle B and upon which the drum  $a$  rests.

$b'$  is a foot or shoe, of rubber, leather, or similar substance, rigidly attached to the end of the axle B to keep it from rotating.

C is a toothed wheel or disk carrying a vertical pin  $c$ . This toothed wheel C is mounted so as to be capable of revolving on a pivot carried by the cup A and is connected by a gear-train with a pinion  $b^2$ , fixed to the axle B.

$a'$  is a disk-shaped plate closing the top of the cup A and provided with a circular opening or hole  $a^2$ , through which the pin  $c$  projects and in which the said pin travels. This disk  $a'$  may be colored if required.

D is a color or pattern disk-shaped plate superposed on the disk  $a'$  and provided with a hole or bearing, with which the pin  $c$  engages.

$d$  is a central slot in the disk D, through

which the rod B passes. This slot  $d$  is of a somewhat greater length than the throw of the pin  $c$ . If the disk D is for the display of colors, the said colors are printed, painted, or otherwise marked thereon in bands, rings, or other form struck from centers situated near the ends of the slot  $d$  after the manner shown in Fig. 3.

$b^3$  is a removable handle placed loosely on the top of the axle B.

The top is spun in the ordinary manner by means of a string wound around the drum  $a$ .

When the top is in operation, the cup A, the winding-drum  $a$ , the disks  $a'$  and D, the toothed wheel C, and the gear-train revolve around the central axle B, which latter, together with the pinion  $b^2$ , remains stationary. The axle B is prevented from revolving with

the spinning part of the top by the frictional engagement of the foot  $b'$  with the surface of the support on which the top may be placed.

When the top is thus spinning, the toothed wheel C, with the pin  $c$ , rotates also on its central pivot, deriving its motion from the pinion  $b^2$  through the gear-train. The rotary movement of the pin  $c$  about the pivot of the wheel C imparts a reciprocating movement to the color-disk D, causing the centers near

the ends of the slot  $d$  (which are the color centers or the centers from which the colors or patterns are struck) to coincide alternately with the axle B, which is the center of rotation of the spinning part of the top. When one of the said color centers coincides with

the said center of rotation, the color or set of colors struck from the said color center is visible. As the top spins, therefore, the colors or sets of colors or patterns struck from

the two color centers will automatically become alternately visible, the color or set of colors or patterns struck from the center which does not for the moment coincide with the center of rotation merely acting as a slight

blur to the visible color or colors or patterns. The handle  $b^3$  is preferably removed when the top is spinning, and the color or pattern disk may be replaced by another displaying

a different color or combination of colors or patterns, as required. When it is required to change the color-disk, the said disk is lifted

over the axle B and replaced by another disk which is so placed on the top that the axle B



passes through its slot  $d$  and that the pin  $c$  engages with a suitable hole or bearing therein.

Referring to Fig. 4, the disk  $D$  is divided into six equal sectors, three of which are colored and three of which are removed, so as to form spaces. The disk  $a'$  is also divided into six equal sectors, which are of the same size as the sectors of the disk  $D$ . Alternate sectors of the disk  $a'$  may be colored the same as the colored sectors of the disk  $D$ , and the remaining alternate sectors are of a different color or colors. The disk  $D$  revolves centrally on the rod  $B$  and has a slot  $d$  formed in one of its colored sectors, into which the pin  $c$  projects and in which the said pin is capable of sliding. As the top spins the pin  $c$  shifts the disk  $D$  first in one direction and then in the opposite direction—that is to say, the pin  $c$  imparts an oscillatory movement to the said disk  $D$ , so as to cause the colored sectors of the said disk  $D$  to alternately coincide with the alternate sectors of the disk  $a'$ . If, for instance, the colored sectors of the disk  $D$  are red and the sectors of the disk  $a'$  are alternately red and yellow, when the the colored sectors of the disk  $D$  coincide with the yellow sectors of the disk  $a'$  red will be visible, and when the colored sectors of the disk  $D$  coincide with the red sectors of the disk  $a'$  a secondary color (orange) will be seen, the colors exhibited by the top while spinning being thus automatically varied. It is obvious that the colors, patterns, &c., of the disks may be varied almost indefinitely or may be arranged to display figures arranged on the principle of the zoetrope or wheel of life.

Referring to Figs. 5 and 6, a top having its disks arranged on the principle of the zoetrope is here shown.  $A$  is the rotary cup.  $a$  is the winding-drum.  $B$  is the stationary axle, provided with the stop  $b$  and foot  $b'$  and having a pinion  $b^2$  fixed thereon, all as previously described.  $d'$  is a rotary disk which carries a concentric pinion  $d^2$ , the disk  $d'$  and pinion  $d^2$  being journaled centrally on the axle  $B$ .  $c'$  and  $c^2$  are a pair of toothed gear-wheels fixed together and journaled on a pivot carried by the cup  $A$ . The wheel  $c'$  gears with the pinion  $b^2$ , and the wheel  $c^2$  gears with the pinion  $d^2$ . The disk  $d'$  carries the disk  $D$ , which is situated within the cup  $A$  and is of slightly less diameter than the internal diameter of the said cup  $A$ . This disk  $D$  has the zoetrope figures arranged upon its upper surface.  $E$  is a disk or cover which rests upon the edge of the cup  $A$ , is preferably black, and has a sector-shaped space  $e$  therein. When the top is spun, as previously described, the rotary cup  $A$  and the cover-disk  $E$  revolve together in one direction about the center  $B$  and the disks  $d'$  and  $D$  revolve in the opposite direction about the said center, the moving figures of the zoetrope being then visible. The disk  $d'$  derives its motion from the stationary pinion  $b^2$  through the gear-wheels  $c'$   $c^2$ , and the pinion  $d^2$ , these gear-

wheels and pinions being so arranged that the disks  $d'$  and  $D$  revolve about the center  $B$  at a slower rate than the cup  $A$  and disk  $E$ . It is obvious that I may employ friction or other gearing in place of the toothed-wheel and pinion gearing above described.

What I claim is—

1. A spinning-top, consisting of a stationary axle having gearing, a spinning-cup rotatable on the axle and having means by which it may be whirled on said stationary axle, a cover-plate arranged upon the upper side of the spinning-cup, gearing carried by said cup and engaging the gearing of the stationary axle, and a pattern-plate superimposed upon said cover-plate and given movement by the gearing independent of the whirling motion of the spinning-cup when spun on the stationary axle, substantially as described.

2. A spinning-top consisting of a stationary axle, a spinning-cup mounted on said axle, a winding-drum attached to said spinning-cup for whirling the latter on the stationary axle, a color-plate adapted to rotate with said spinning-cup, and means for automatically shifting the said color-plate so as to vary its position with reference to the said spinning-cup as the latter whirls on said stationary axle, substantially as described for the purpose specified.

3. A spinning-top having a stationary axle, a spinning-cup mounted on said axle and having means whereby it may be whirled thereupon, a shifting color-plate having sets of colors struck from different centers and a centrally-arranged slot through which the stationary axle extends, and means for shifting the color-plate as the spinning-cup whirls on said axle, substantially as described.

4. A spinning-top consisting of a stationary axle, a shoe on said axle to prevent it spinning, a spinning-cup mounted on said axle, a winding-drum attached to said spinning-cup, a colored disk closing the top of the cup and having a circular hole therein, a slotted color-plate adapted to rotate with said spinning-cup, a pinion fixed to said axle within the spinning-cup, a toothed wheel journaled on a pivot carried by said cup, a pin carried by said toothed wheel which pin projects through and travels in the circular hole in the disk closing the cup and engages with the color-plate, and means for gearing the toothed wheel to the said pinion, substantially as described for the purpose specified.

5. A spinning-top consisting of a stationary axle, a shoe on said axle to prevent it spinning, a spinning-cup mounted on said axle, a winding-drum attached to said spinning-cup, a color-plate having a centrally-arranged slot through which the stationary axle passes and adapted to rotate with the spinning-cup, a colored disk closing the said cup and having a circular hole therein, a pinion fixed to said axle within the spinning-cup, a toothed wheel journaled on a pivot carried by the spinning-cup, a pin carried by said toothed wheel which



pin projects through and travels in the circular hole in the disk closing the cup and co-operates with the color-plate so as to shift its center of rotation as the top spins, and a  
5 toothed gear-train pivoted to the cup and gearing the toothed wheel to the said fixed pinion, substantially as described, for the purpose specified.

6. A spinning-top consisting in a stationary  
10 axle, a shoe on said axle to prevent it spinning, a spinning-cup mounted on said axle, a winding-drum attached to said spinning-cup, a pinion fixed to the stationary axle within the cup, a rotary pinion journaled on the fixed  
15 axle and carrying a figure-disk within the spinning-cup, means for gearing the fixed pinion to the rotary pinion so as to cause the fig-

ure-disk to travel in the reverse direction to and at a slower rate of speed than the spinning-cup as the top spins, and a concentric  
20 cover-disk adapted to rotate in the same direction with and at the same rate of speed as the spinning-cup and having a sector-shaped hole through which the figure-disk is visible; substantially as described for the purpose  
25 specified.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 17th day of May, 1899.

JOHN COLLINS.

Witnesses:

F. McLELLAN,  
FRED C. HARRIS.