Dec. 19, 1950 O. THORESEN 2,534,538

TOP AND SPINNING DEVICE THEREFOR

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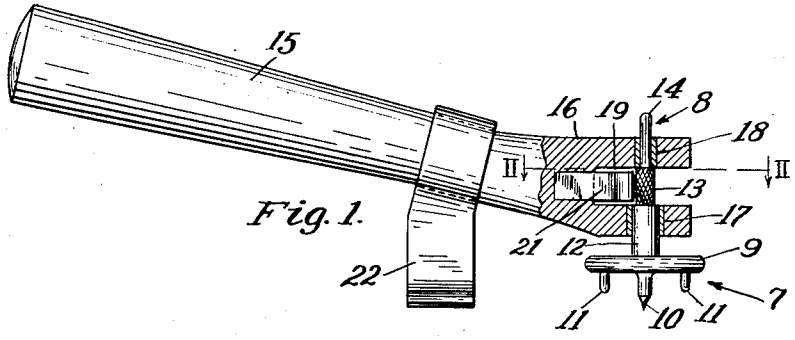


Fig. 1.

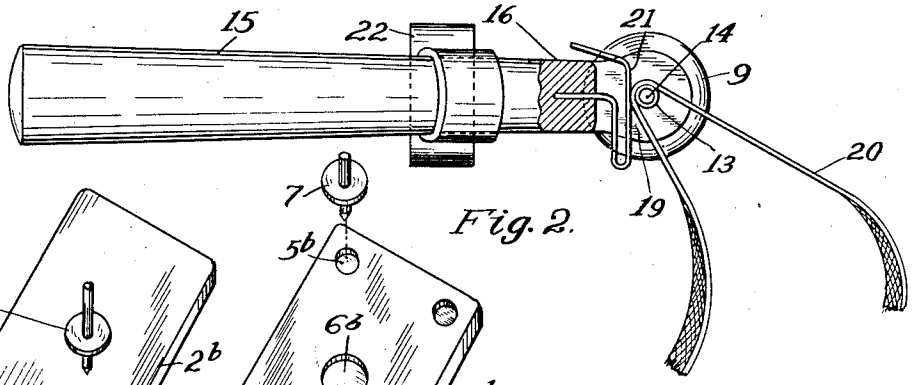


Fig. 2.

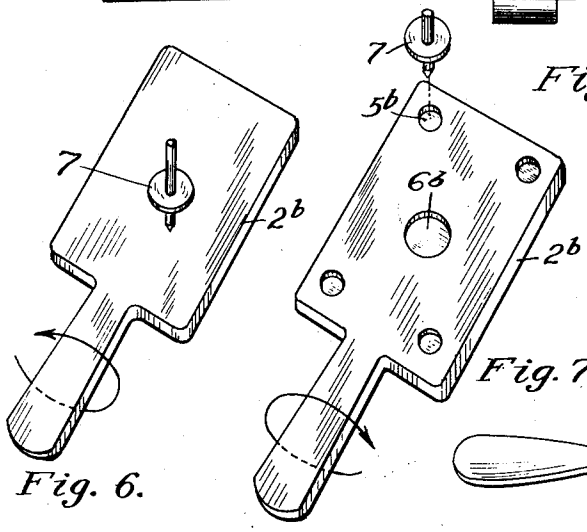


Fig. 7.

Fig. 6.

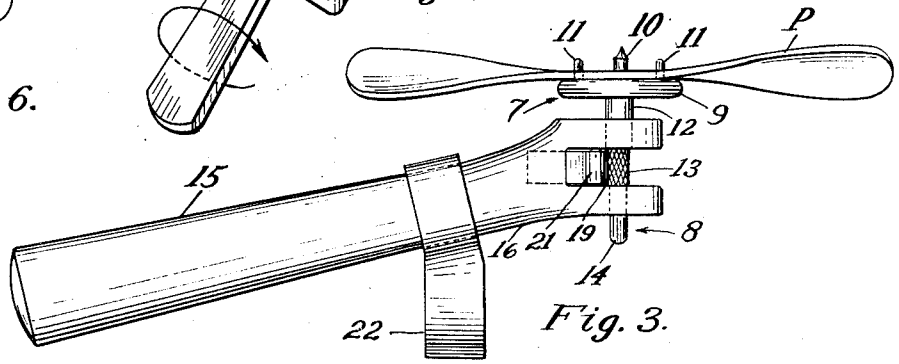


Fig. 3.

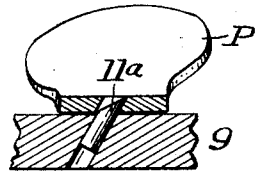


Fig. 3a.

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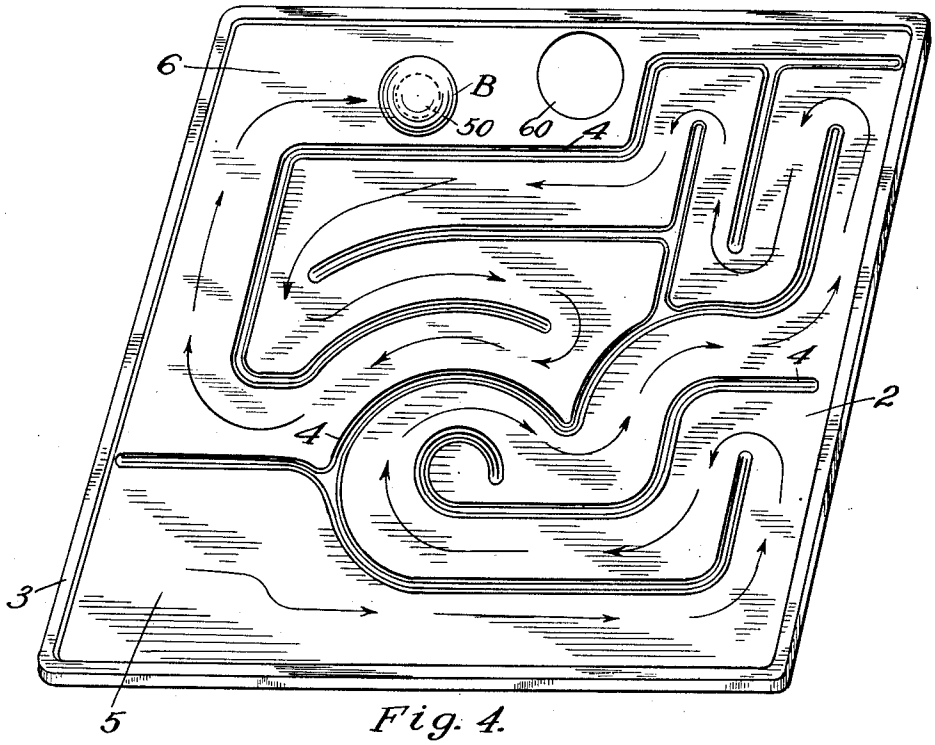


Fig. 4.

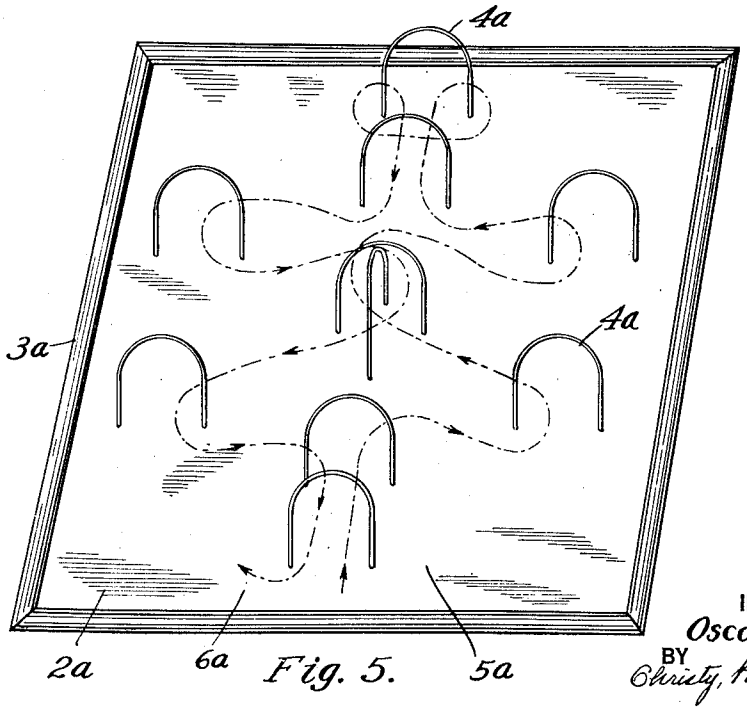


Fig. 5.

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TOP AND SPINNING DEVICE THEREFOR

Oscar Thoresen, Pittsburgh, Pa.

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3 Claims. (Cl. 46—70)

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My invention relates to games and toys, and particularly to games or toys in which a spinning top is, subject to the control and skill of the player, caused to advance upon a movable playing surface from one position to another. The invention consists in certain new and useful structural improvements in such apparatus, as well as in means for spinning the top, and in the top per se.

The invention will be understood upon reference to the accompanying drawings, in which:

Fig. 1 is a view partly in side elevation and partly in vertical section of a top-spinning device of the invention, showing a top positioned in the device;

Fig. 2 is a view of the device as seen from above Fig. 1, with a portion of the device broken away to indicate the manner in which a draw-string is arranged to spin the top;

Fig. 3 is a side view of the device in inverted position, with the top arranged with a propeller blade which is adapted, upon rapid rotation of the top, to rise from engagement with the top and soar away in the air;

Fig. 3*a* is a fragmentary view, showing to larger scale a portion of the structure shown in Fig. 3;

Fig. 4 is a view in perspective, on smaller scale, of a playing board upon which the top may be spun and, while spinning, caused to advance through a series of playing positions or a pathway;

Fig. 5 is a view similar to Fig. 4 of a modified playing board; and

Figs. 6 and 7 are views in perspective, and on still smaller scale, of a playing board of still another form—a board of paddle-like structure. In Fig. 6 the bottom of the board appears and in Fig. 7 the top appears.

In general the game or toy apparatus comprises a playing board having a hard surface upon which a spinning top may be supported. The board is adapted in the hands of the player to be tilted this way and that, whereby the spinning top may be caused to travel over the surface of the board in a prescribed course from one playing position to another. The object of the game is to effect the prescribed movement of the top in the interval between the time the top is set in rotation on the playing surface and the time at which the inertia and momentum of the top are spent and rotation ceases. The apparatus includes a device for spinning the top, and the top itself includes certain structural improvements which will be described after considering the game boards of Figs. 4 to 7 and the manner of their use.

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The game board of Fig. 4 comprises a sheet or plate 2 having a rail or marginal bead 3. The plate 2 has a hard, smooth surface that will sustain a spinning top with a minimum of resistance against rotation or movement of the top over the surface when the board is tilted. A plate of metal or of hard fibre board, or a rigid sheet of plastic material, such as urea formaldehyde, provides a suitable material of which to form the body 2 of the playing board. A tortuous pathway is formed in the board by cutting therein a system of slots 4, and the pathway thus formed leads from a playing position 5 to a playing position 6. A top, presently to be described, is set in rotation at the position 5, and the prayer, by tilting the board one way and another from horizontal position, causes the spinning top to travel along the pathway outlined by arrows. If the player is skillful he will be able to cause the top to travel the entire length of the twisting pathway from position 5 to position 6 before the top has stopped spinning, it being understood that by tilting the board relatively acutely the speed of travel may be increased, as need be, to permit the top while spinning to travel the entire length of the pathway, but by increasing the speed of travel of the top it becomes difficult to keep the top from running afoul one of the grooves 4, in which event the play must be started from the beginning again. Such is the nature of the game, which is very interesting and requires a great deal of play before the required skill is developed to succeed in the object.

In further elaboration, the board 2 is provided with two holes 50 and 60, and a ball B (say a Ping-pong ball loaded with lead shot) is freely seated in the hole 50. The object is to keep the ball seated while manipulating the board to advance the spinning top from position 5 to position 6. When the top reaches the position 6 it is caused to move against the ball B and to dislodge it from the hole 50 and to cause it to roll to the larger hole 60, through which the ball falls. In fact, by extending the area of the board at position 6, there may be two holes 50 provided to seat two balls B, and two holes 60 to provide for the discharge of the balls from the playing surface, it being understood that the spinning top may be moved against one ball and then the other, to dislodge them from seated positions, whereupon the balls may, by shifting the board to and fro, be caused to fall through the holes.

The game may be rendered yet more difficult by bending certain of the pathway-defining portions of the board 2 upward at a slight angle

from the normal plane of the grooves which border such portions, for in such way the "feel" of the player in tilting the board must be varied as the spinning top reaches various points in the length of the pathway.

In Fig. 5 is shown a playing board 2*a* having a rim or bead 3*a* which is provided with a plurality of playing positions in the form of wickets 4*a* that are arranged as a miniature of a croquet court. The top is set in rotation at position 5*a*, and the object is (by tilting the board) to effect the travel of the top through the several wickets as indicated by the arrow. If the entire course or path indicated is traversed and position 6*a* reached before the spinning top stops, the player has successfully completed one game. The game may be repeated, as may the game on board 2, until as between several competing players one player has successfully finished the course more often than the others.

In still further modification, the board may take the form of the paddle 2*b* illustrated in Figs. 6 and 7. In the use of this board the top is set in rotation on the under side of the paddle, which appears turned upward in Fig. 6, with a spinning top 7 thereon. The upper side of the board includes four corner recesses 5*b* and a central recess 6*b*, formed within the face of the board, these recesses providing the several playing positions. In play, after the top 7 has been set in rotation on the back of the board, the board is flipped to throw the top in the air; then the board is rotated into the position shown in Fig. 7 to catch the top on the upper surface of the board, preferably in one of the recesses therein, but if not the board may be tilted to cause the top to move into the desired recess. Then, the top is flipped into the air and caught on the back of the board; again the top is flipped into the air and caught on the front of the board and moved into another of the recesses 5*b*, 6*b*; and so the operation is repeated until the spinning top has been brought into position in each of the recesses and returned to the "starting" side of the board (Fig. 6). In order to complete the game successfully, all of these manipulations, after the top has been once set in rotation, must be completed before the top comes to rest.

Referring to Fig. 1, it will be seen that the top 7 comprises a vertical spindle 8 of metal from which a circular disk-shaped metal body 9 extends radially. The lower point or end 10 of the metal spindle is hardened and polished, so that the top may rotate with minimum friction upon the hard surface of the playing board. Additionally, the mass of the body 9 is, to the end in view, concentrated nearer to the pointed lower end of the spindle than to the upper end. Means, in the form of two depending pins 11 spaced on diametrically opposite sides of the spindle, are provided on the top body for a purpose later herein to appear. The body of the spindle above the body 9 consists in three portions 12, 13 and 14 of successively decreased diameter.

The device for spinning the top comprises a handle portion 15 and a terminal portion or bearing 16 of bifurcated form. The portions 15 and 16 are integrally formed of wood in this case, and in the bearing portion 16 two spaced metal bearings 17 and 18 are aligned to receive the spindle 8 of the top, with the medial body portion 13 of the spindle exposed between the bearings, and providing a recess 19 for the passage through of a draw-string 20, which may consist of a conventional shoelace. The bearings 17 and 18 are formed respectively to receive the portions 12 and 14 of the spindle in a loose fit that permits the spinning device to be readily lifted free from the spindle.

In the recess 19 a leaf-spring 21 is arranged as shown, the spring being anchored at one end to the body portion 16 of the device, and extending in a resilient leaf portion that is adapted to press the body of the draw-string against the portion 13 of the top spindle exposed between the bearings 17 and 18, such body portion 13 of the spindle being knurled, as illustrated. The knurling comprises friction means that inhibits slip in the engagement of the draw-string with the spindle. In assembling the draw-string and the top with the device, the body of the string is inserted in the space or recess between bearings 17 and 18 before the top spindle is fitted in the bearings. The string is pressed against the leaf spring and the spring pressed in a direction towards the handle portion 15. Then, the spindle 8 is inserted in the bearings and the spring released, the spring urging the body of the draw-string against the knurled portion of the spindle, as shown in Fig. 2. The draw-string is adjusted so that one end is adjacent one side of the device, leaving the remaining body of the string extending from the opposite side, but it will be noted that the body of the string is so extended from the spindle of the top that the engagement of the string with the spindle is effective through approximately 180°.

The device is advantageously provided with a sturdy support portion 22, comprising herein a metal leg-like element secured on the handle portion 15 adjacent to the terminal portion 16. In service the device is positioned with the lower end of the support portion 22 bearing on the surface of the playing board upon which the top is to be spun, and when so positioned the point 10 of the top rests upon or immediately above such surface at the starting position (5 or 5*a*). With the device thus held and steadied in one hand of the player, the draw-string 20 is rapidly pulled with the other hand, the draw-string being pulled entirely through and out of the recess 19. The string operates upon the spindle of the top as a belt acts on a pulley, and under the frictional torque imparted to the spindle the top is set in rapid rotation, and the handle-like device is quickly lifted free from the top, leaving the top spinning on the surface of the playing board, whereupon the manipulation of the board is commenced in the manner already described. It may be remarked that the pulling of the draw-string through the recess 19 and out of contact with the spindle portion 13, relieves the spindle from the pressure of the leaf-spring, the spring being so arranged and designed that its stress is applied only to press the draw-string against the spindle and not bind against the spindle when the body of the draw-string is not positioned between the spring and the spindle portion 13. This clearance between the spring and the spindle when the draw-string is pulled away is indicated in Fig. 1. Such is the nature of the game or toy apparatus of the invention.

In inverting the spinning device, as shown in Fig. 3, the top 7 becomes a rotor upon which propeller P of sheet metal, or plastic, or the like may be freely seated, the propeller having a central perforation that receives the point 10 of the top,

with the pin means 11, 11 extending upward through perforations in the propeller to prevent relative rotation between the propeller and the top. The top is set in rapid rotation by means of the draw-string, and thus the propeller is set in rotation, and in consequence of the screw action of the propeller in the atmosphere the propeller rises free from top and soars in the air, until its rotative energy is spent.

In refinement, the propeller-engaging pins 11 may be tapered and inclined, as shown at 11*a* in Fig. 3*a*, with the effect that the impeller will not be disengaged from the pins while the top is being positively rotated under the pull of the string, but will be more readily disengaged from the top after the string has been pulled entirely through the recess and maximum rotary speed has been attained. This, and other variants and modifications are within the spirit of the invention defined in the appended claims.

I claim:

1. A device for spinning a top provided with a bearing tip at the bottom of the top body and a spindle extending upwardly from the top body, said device comprising a handle portion, a bearing portion adapted releasably to receive the spindle of said top, a draw-string, means for securing said draw-string in rotation-producing engagement with said spindle, and a leg-like element extending downwardly from said handle and arranged to support the handle portion at an interval above a surface upon which to spin the top, with said tip of the top positioned on or immediately above said surface.

2. In a top having an axial spindle extending upward from its body, and a device for spinning the top by means of a draw-string on a supporting surface; the invention described wherein said device comprises a handle portion having a terminal portion provided with two bearings aligned to receive said spindle and spaced to leave a medial portion of the spindle body exposed between the bearings and to provide a recess for the passage of said draw-string, a leg-like element extending downwardly from said device and adapted to rest on said surface and arranged to support said handle portion at an interval above said surface, and a leaf-spring arranged on said terminal portion of the device to urge the body of said draw-string passed through said recess into frictional contact with the exposed body portion of said spindle, whereby the rapid pulling of the draw-string through said recess is adapted to set said top in rapid rotation and to release said spindle from the frictional pressure of said spring, with the effect that said device may be lifted free from said spindle, leaving the top spinning freely on said surface.

3. In a top having an axial spindle extending upward from its body, and a device for spinning the top by means of a draw-string on a supporting surface; the invention described wherein said device comprises a handle portion having a terminal portion provided with two bearings aligned to receive said spindle and spaced to leave a medial portion of the spindle body exposed between the bearings and to provide a recess for the passage of said draw-string, a leg-like element extending downwardly from said device and adapted to rest on said surface and arranged to support said handle portion at an interval above said surface, friction means on said medial portion of the spindle body, and a leaf-spring arranged on said terminal portion of the device to urge the body of said draw-string passed through said recess into frictional contact with the exposed body portion of said spindle, whereby the rapid pulling of the draw-string through said recess is adapted to set said top in rapid rotation and to release said spindle from the frictional pressure of said spring, with the effect that said device may be lifted free from said spindle, leaving the top spinning freely on said surface.

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