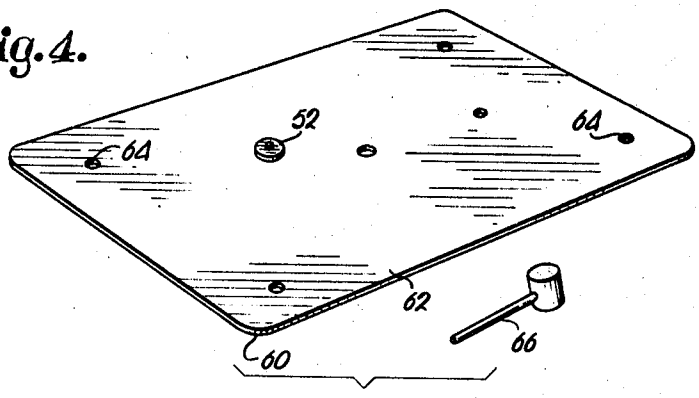
Nov. 12, 1968 L. I. BEHL 3,410,022

TOP SPINNING APPARATUS

Filed July 13, 1966

Fig.4.



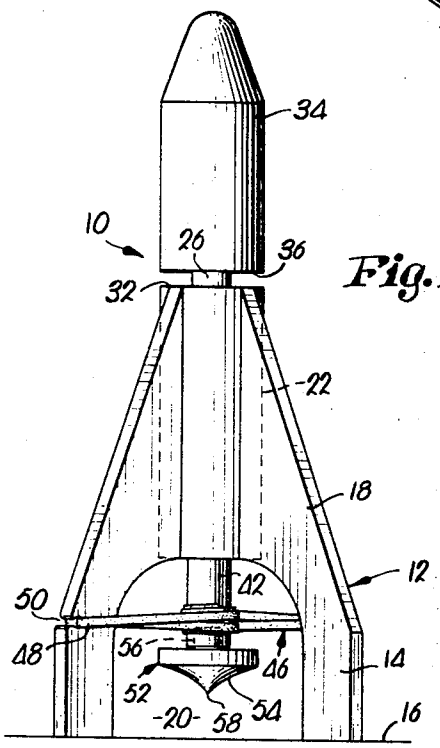


Fig.1.

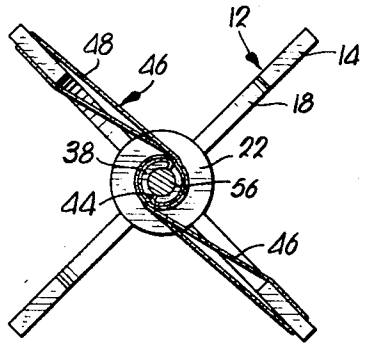


Fig.3.

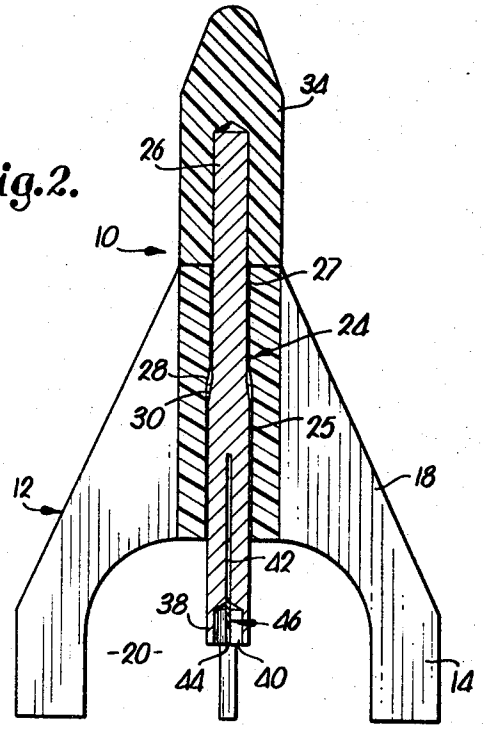


Fig.2.

INVENTOR
Leonard I. Behl

BY Hovey, Schmidt, Johnson & Hovey.
ATTORNEYS.

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TOP SPINNING APPARATUS

Leonard I. Behl, Kansas City, Kans., assignor of one-half to William P. Evans, Kansas City, Mo.

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9 Claims. (Cl. 46—72)

This invention relates to top spinning apparatus and also to a game utilizing such apparatus.

It is the primary object of this invention to provide a spinning apparatus capable of spinning a top without the necessity of complicated torquing, latching, and releasing components.

It is another object of the instant invention to provide a top spinning apparatus of the aforementioned character wherein the spinning top is smoothly ejected from the apparatus so that maximum spinning energy is imparted to the top.

An important object of my invention is to provide top spinning apparatus wherein the spinning means cooperates with top retention structure in a novel manner to hold the top while spinning rotation is initially imparted to the top and then to release the top for spinning on a playing surface.

Yet another object of the invention is to provide a game adapted for use in combination with top spinning apparatus, such as that described above, the game being constructed specifically to test a player's skill at manipulating a board to move a top spinning thereon with controlled accuracy to specified locations and bringing the spinning top to rest at such locations.

In the drawing:

FIGURE 1 is a side elevational view of top spinning apparatus made pursuant to the present invention, showing the same holding a top above a playing surface;

FIG. 2 is a substantially central, vertical, cross-sectional view thereof;

FIG. 3 is a bottom plan view thereof; and

FIG. 4 is a reduced perspective view of a game adapted for use with the apparatus shown in FIGS. 1–3.

The top spinning apparatus of the present invention, broadly designated by the reference numeral **10**, includes a plurality of leg support members **12** having corresponding vertical, lower portions **14** adapted to rest on a playing surface **16**, and inwardly inclined upper portions **18** which present a lower open area **20** between legs **12**. The inner edges of upper portions **18** are rigidly secured to a vertically extending sleeve element **22** which overlies open area **20** and has a cylindrical bore **24** therein which includes a lower portion **25** and an upper portion **27**, the latter having a smaller diameter and being connected to lower portion **25** by an inclined annular shoulder **28** which is tapered inwardly as the upper end is approached.

A cylindrical shaft element **26** is telescoped within bore **24** for longitudinal reciprocation therein and is similarly tapered to define a shoulder **30** and thereby present complemental inclined facing surfaces on sleeve **22** and shaft **26**. The upper portion of shaft **26** extends above the top abutment **32** of sleeve **22** and is rigidly secured to a cylindrical knob **34** having a lower annular edge **36**.

Holding structure is provided at the lowermost end of shaft **26** and comprises an integral peripheral sidewall **38** opening downwardly to present a cylindrical recess **40**. An elongated, vertical slot **42** is formed in shaft **26** and extends through sidewall **38** to present a pair of opposed slit openings **44**. Resilient means for spinning the top may be in the form of a conventional elastic rubber band **46** which is extended through slits **44** to present a pair of end loops **48** which are adapted to fit within corresponding notches **50** formed in a pair of opposed legs **12**.

Apparatus **10** is adapted for spinning a top, such as that illustrated in FIG. 1 and designated by the numeral **52**,

wherein is provided an upper cylindrical shank **56** and a conical lower face **54** terminating in an apex **58**. In use, a player inserts shank **56** into recess **40** and grips knob **34** to shift shaft **26** to a lower position permitting relative rotation between shaft **26** and sleeve **22** (FIG. 2). The player then manually turns knob **34** to rotate shaft **26** in one direction about its longitudinal axis with respect to sleeve **22**, causing the proximal portions of band **46** to circumscribe sidewall **38** and compress the latter so that the inner surface of sidewall **38** frictionally engages shank **56** to hold top **52** above surface **16**. Slits **44** facilitate the compression of sidewall **38**. As band **46** is circumscribed about sidewall **38** it is stretched to impart a tangential force acting on shaft **26** which places a torque on shaft **26** having a turning effect measured by the product of the tangential force and the radius of sidewall **38**. Of course, the stretched band **46** urges rotation of shaft **26** with respect to sleeve **22** in the opposite direction of initial rotation about the longitudinal axis of shaft **26**. Thus, band **46** serves the combined functions of compressing sidewall **38** to hold top **52** and simultaneously placing a torque on shaft **26**.

After shaft **26** is sufficiently torqued and top **52** frictionally retained by sidewall **38**, the player grasps knob **34** and longitudinally shifts shaft **26** upwardly to place tapered shoulders **28** and **30** in frictional interengagement to preclude relative rotation between shaft **26** and sleeve **22**. Shaft **26** and sleeve **22** are preferably formed of materials exhibiting a high coefficient of friction to assure positive interengagement. Satisfactory results have been achieved by constructing sleeve **22** from commonly available plastic material and shaft **26** from wood, with shoulders **28** and **30** being tapered at about 10°.

Apparatus **10** is thereby in a cocked position, as illustrated in FIG. 1, with shaft **26** being torqued in preparation for spinning top **52**. The player then sets legs **12** on playing surface **16** with shaft **56** substantially vertical and shifts knob **34** downwardly to disengage shoulders **28** and **30** and thereby permit relative rotation between shaft **26** and sleeve **22**. The force imparted by band **46** then acts to spin shaft **26** about its longitudinal axis to impart a rotating inertia to top **52**. As band **46** unwinds about sidewall **38**, the compression on the latter is progressively decreased and sidewall **38** expands until top **52** is permitted to drop from recess **40** to playing surface **16** for spinning on apex **58** by virtue of the aforementioned rotating inertia.

Preferably, shaft **26** is shifted from its upper cocked position to the lower rotating position by striking knob **34** with a mallet or the like to instantaneously shift lower edge **36** of knob **34** into impactive engagement with abutment **32** of sleeve **22**. While shaft **26** is shifting downwardly, it will rotate in response to the torque thereon, since shoulders **28** and **30** are no longer in frictional engagement. Band **46** is sufficiently unwound when edge **36** strikes abutement **32** so that the downward inertia imparted to top **52** will cause the top to eject from recess **40** for spinning on playing surface **16**. The ejecting of top **52** effects a smooth disengagement of top **52** from apparatus **10** and thereby enhances its spinning action.

Apparatus **10** may be used with a game such as that illustrated in FIG. 1, utilizing a board **60** having an upper playing surface **62**. There are a plurality of depressions or apertures **64**, each smaller than the diameter of top **52**, formed in the board at various spaced locations over surface **62** and extending therethrough. Apparatus **10** is placed on surface **62** in a cocked position, whereupon a player strikes knob **34** with a mallet **66** to eject top **52** onto playing surface **62**. The player then removes apparatus **10** and grasps the edges of board **60** to selectively tilt the latter to direct the spinning top **52** to one of the apertures **64** in an attempt to seat or

land top 52 therein. The game is thus particularly suitable for testing a player's skill at manipulating the board with manual dexterity and balance. Since apparatus 10 may conveniently be formed in the shape of a rocket ship as illustrated in the drawing, playing surface 62 of board 60 may desirably be provided with indicia illustrating the solar system, with apertures 64 representing various celestial bodies. A player who successfully moves a spinning top to one of the apertures 64 and keeps the top in the aperture until it comes to rest, may be said to have made a "landing" on the celestial body represented by the aperture.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. Apparatus for spinning a top on a playing surface, said apparatus comprising:

a support;

a pair of relatively telescoped elements, one of the elements being carried in a vertical position by the support above the playing surface, the elements including facing surfaces configured to permit longitudinal shifting of the other element between an upper position for placing the surfaces in frictional interengagement precluding relative rotation therebetween and a lower position permitting relative rotation therebetween;

resilient means coupled between the support and other element for placing a torque on the latter when it is rotated in one direction about its longitudinal axis with respect to said one element, the torque urging rotation of said other element with respect to said one element about said axis in the opposite direction; and

holding structure operably coupled to said resilient means to hold a top above the playing surface when said other element is torqued, and to release the top for spinning on the surface when said other element is rotated in said opposite direction in response to said torque.

2. The invention of claim 1, there being an abutment on said one element and an edge on said other element, the surface and edge being positioned for impactive engagement when said other element is shifted from said upper position to said lower position to eject the top from said structure toward the playing surface.

3. The invention of claim 1, said elements comprising a sleeve and shaft, the latter being reciprocable within the sleeve, said support carrying the sleeve.

4. The invention of claim 3, said facing surfaces of the sleeve and shaft being cylindrical and tapering inwardly as the upper ends thereof are approached so that upward shifting of the shaft effects said frictional engagement.

5. Apparatus for spinning a top on a playing surface, said apparatus comprising:

a vertically extending element;

a support rotatably carrying said element above the surface for rotation of the element about its longitudinal axis with respect to the support;

a flexible, peripheral sidewall on the lowermost end of the shaft, the sidewall opening downwardly to present a recess for receiving a portion of the top;

resilient means connected between the support and element for placing a torque on the latter when it is rotated in one direction about said axis with respect to said support, the torque urging rotation of the element with respect to said one element about said axis in the opposite direction, the resilient means being coupled to said sidewall to compress the latter to frictionally engage the top to hold the same when said element is torqued, and to release the top for spinning on said surface when said element is rotated in said opposite direction in response to said torque.

6. The invention of claim 5, said sidewall being provided with an opening to facilitate compression thereof.

7. The invention of claim 5, said resilient means comprising an elastic band intercoupling the support and the outer surface of the sidewall whereby, when the element is rotated in said one direction, the band circumscribes the sidewall to compress the same.

8. The invention of claim 7, said support including a pair of members on opposed sides of said sidewall, said sidewall being provided with a pair of vertically extending slits, said band extending through the slits and connected at the opposed ends to corresponding members.

9. The invention of claim 5, said support including a sleeve, the element comprising a shaft telescoped within the sleeve, the elements including facing surfaces configured to permit longitudinal shifting of the shaft between an upper position for placing the surfaces in frictional interengagement precluding relative rotation therebetween and a lower position permitting relative rotation therebetween.

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LOUIS G. MANCENE, *Primary Examiner.*

R. F. CUTTING, *Assistant Examiner.*