

J. A. IRVING.

GYROSCOPIC TOP.

APPLICATION FILED MAY 23, 1908.

1,011,202.

Patented Dec. 12, 1911.

Fig. 1.

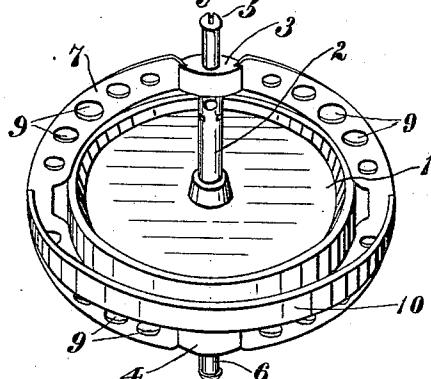


Fig. 2.

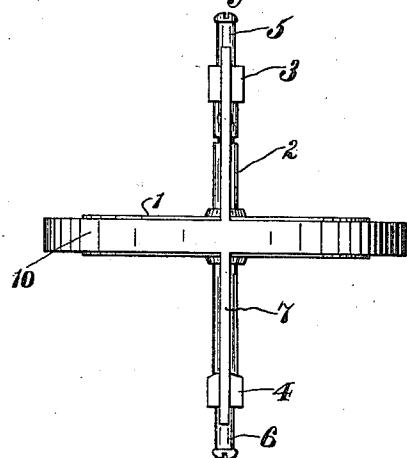


Fig. 3.

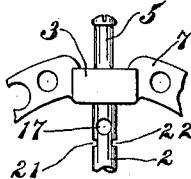


Fig. 4.

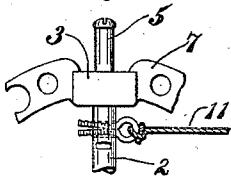


Fig. 5.

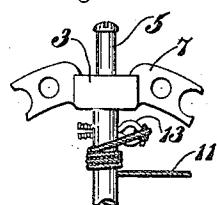


Fig. 6.

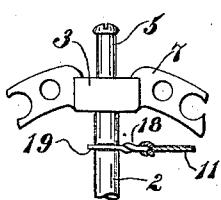


Fig. 7.

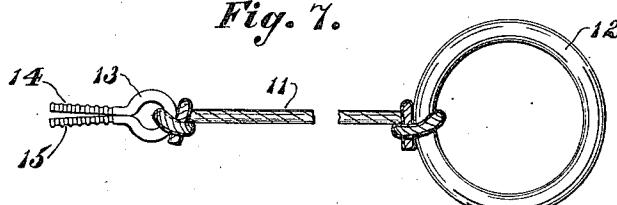
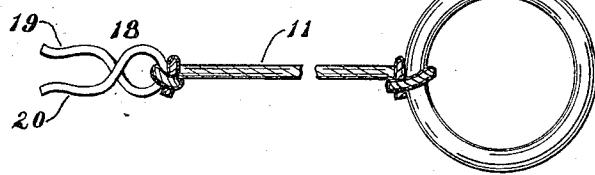


Fig. 8.



Witnesses:

William H. Irish.

Katharine Dayton

Inventor,
James A. Irving
By
John D. Morgan
Attorney.

UNITED STATES PATENT OFFICE.

JAMES A. IRVING, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE WIZARD PATENT DEVELOPING COMPANY, A CORPORATION OF NEW YORK.

GYROSCOPIC TOP.

1,011,202.

Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed May 23, 1908. Serial No. 434,663.

To all whom it may concern:

Be it known that I, JAMES ALBERT IRVING, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Gyroscopic Tops, of which the following is a specification.

The invention relates in some of its features to gyroscopes, and in certain of its 10 features it relates to devices rotating or spinning about their center in general.

The objects of the invention will appear in part from the description and claims herein, and will in part be obvious to those 15 skilled in the art.

The invention consists in the novel parts, articles, combinations and improvements herein shown and described.

The accompanying drawings, referred to 20 herein and forming a part hereof, illustrate one embodiment of the invention, the same serving in connection with the description herein to explain the principles of the invention.

25 Of the drawings: Figure 1 is a perspective view of a gyroscope constructed in part in accordance with the principles of the invention. Fig. 2 is a corresponding elevation; Figs. 3 and 9 are fragmentary elevations illustrating certain features of the invention; Figs. 4, 5 and 6 are fragmentary views illustrating certain parts and uses of devices embodying certain principles of the invention; and Figs. 7 and 8 illustrate 30 forms of spinning devices.

As hereinbefore indicated, the invention in certain aspects relates generally to devices constructed and intended to rotate or spin about their own axes. I have chosen 40 in the illustrated embodiment to show the invention applied to a gyroscope. The gyroscope is shown herein as comprising a disk 1 fixed upon a suitable shaft 2. Said shaft is shown resting in bearings 3 and 4, respectively.

45 Said bearings comprise adjustable members 5 and 6 which may be threaded into the blocks 3 and 4, respectively, said members being also shaped at their inner ends to receive the coned ends of the axle 2. The bearings 3 and 4 are shown recessed at 50 8 so that the coned end of the axle is entirely within the bearing, as shown in Figs. 3 and 9, thus preventing winding of the string on the coned part and thus stopping 55 the device, grinding or snapping the string,

or otherwise interfering with or injuring the device. The bearings 3 and 4 are also shown attached to or integral with a suitable axle ring 7. The ring 7 is shown as flat in form transversely to the disk 1 and bearings 3 and 4, that is, in a plane passing through the axle or spindle 2. This gives a structure of relatively great strength in the directions in which strength is required in such a device and at the same time providing for 60 ease and economy of manufacture and also exact construction of the device. Rigidity of the ring 7 with respect to the axle 2 is secured thus preventing springing of the axle out of its bearing, bending or twisting of the bearings out of line, etc. Apertures 9 may be provided in the ring 7 which serve to lighten the structure, if desired, or to distribute the weight more advantageously, or minimize the atmospheric resistance when the ring is revolving, or for other purposes. A suitable guard may be provided to protect the disk 1 and a form thereof is shown comprising a circular ring 10 arranged about the disk 1. 80

As is well known, devices intended to spin about their own centers, whether mounted in an auxiliary structure or resting freely upon any suitable supporting surface, may be made to spin by a string or equivalent 85 device applied to a suitable part, such as a hub or an axle concentric with the disk or main body of the spinning device. In the illustrated embodiment I have therefore shown devices and constructions which provide a new way or method of spinning and also of winding the string or equivalent device preparatory to spinning. In accordance with said features of the invention I provide a frictional device having a string 90 attached thereto and upon the spindle or hub of the gyroscope, top, or other spinning body, I provide a part shaped and disposed to engage frictionally with said device. 95

Referring to Figs. 7 and 8, a string 11 is 100 shown having at one end thereof a suitable finger ring 12. At the other end of the string there is shown, in Fig. 7, a split pin 13 having two spring members 14 and 15, respectively. The said members may be provided also with a roughened or corrugated surface and they are so shown. In the axle 2 is shown an aperture 17 into which the member 13 may be placed and it will be held 105 therein by the friction due to the pressure 110

of the spring members 14 and 15. It will be understood, however, that said frictional engagement may be produced otherwise than by spring pressure so far as concerns the 5 broad aspect of the invention.

In Fig. 8 of the drawings a different form of the frictional device is shown comprising a rider 18 having two separated spring arms 19 and 20. The shaft 2 is shown provided 10 with slots or kerfs 21 and 22 into which the arms 19 and 20 may enter substantially as shown in Fig. 6 of the drawings.

The manner of using said devices, is substantially as follows: The frictional device 15 is brought into engagement with the spindle, as shown in Figs. 4 and 6, and the disk or other body 1 may then be given a single slight rotative impulse. This will be sufficient to wind the string 11 upon the spindle 2. If the string is not sufficiently tightly wound, or a sufficient length thereof has not 20 been taken up on the spindle 2 a slight pull upon the string will cause the disk 1 to rotate in the opposite direction and if desired 25 a much stronger rotative impulse may thus be easily and quickly given to it. The frictional device will remain in engagement with the axle 2 and cause the string to rewind. When the string is properly arranged 30 upon the spindle a pull may be given upon the string 11 and this may be continued to the full extent of the string and will thus serve, when the frictional device is in alignment with the direction of pull and the 35 string is fully extended, to withdraw the frictional device from engagement with the

spindle 2, thus leaving the spinning body to rotate alone until its momentum is exhausted by the friction of the atmosphere and of its support.

What I do claim as my invention and desire to secure by Letters Patent, is:

1. A gyroscope including in combination 40 a body adapted for spinning, a device having a spring action, a string attached to said device, and a spindle attached to said body and having a part formed to engage with said spring device.

2. A gyroscope including in combination 45 a body adapted for spinning, a spindle fixed 50 to said body, a spring device having a string attached thereto, said spring device engaging said spindle so as to remain fixed thereto when said string is wound around the spindle and so as to be detached when the string 55 is pulled out from the spindle.

3. A gyroscope including in combination 60 a body adapted for spinning, a spindle fixed to said body concentric therewith, a string and a device attached thereto, said device 65 having two spring members for engaging said spindle whereby said device remains in position when the cord is wound around said spindle and separates from said spindle when the string is pulled straight out.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES A. IRVING.

Witnesses:

JOHN D. MORGAN,
FRED OPPENHEIMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
