K. EDISON.

GYROSCOPIC TOP.

APPLICATION FILED DEC. 20, 1919.

1,351,630. Patented Aug. 31, 1920.

Fig. 1.

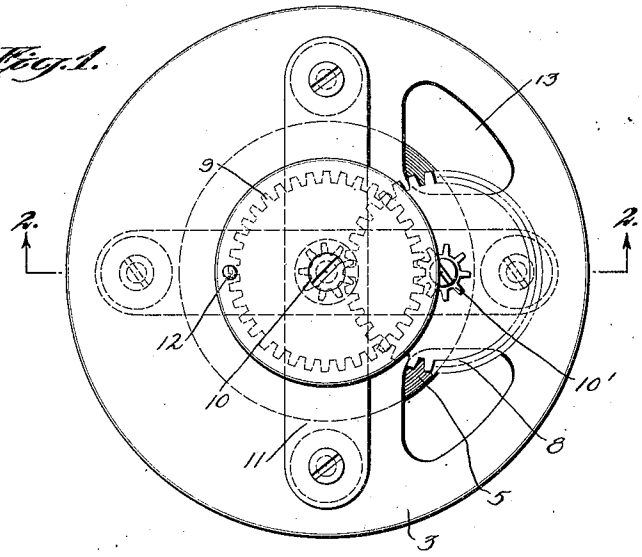


Fig. 2.

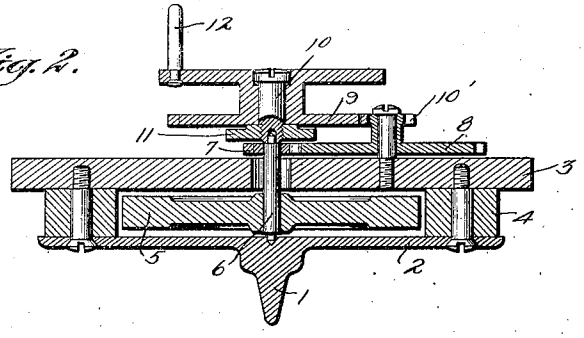
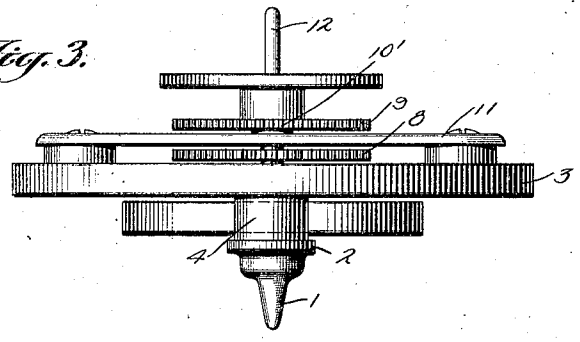


Fig. 3.



WITNESSES

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KARL EDISON, OF SPRING VALLEY, NEW YORK, ASSIGNOR TO HARRY E. BLOCK, OF SPRING VALLEY, NEW YORK.

GYROSCOPIC TOP.

1,351,630. Specification of Letters Patent. Patented Aug. 31, 1920.

Application filed December 20, 1919. Serial No. 346,252.

To all whom it may concern:

Be it known that I, KARL EDISON, a citizen of the United States, and a resident of the city of Spring Valley, in the county of Rockland and State of New York, have invented a new and useful Gyroscopic Top, of which the following is a full, clear, and exact description.

This invention relates to a gyroscopic top, and aims to provide certain new and useful improvements in connection with this type of top, although the invention is not necessarily limited to this adaption.

It has been customary heretofore to mount a gyro wheel within gimbals, and has one of the gimbals provided with a point upon which the top may rest in the usual manner. A string has been wrapped around the driving shaft of the gyro wheel, and a quick pull upon the same has resulted in a high rate of R. P. M. of the same, so that due to the action of the gyroscope the top has been capable of being placed in any position and maintaining its stability.

This type of top has proven to have numerous defects in that primarily a string had to be employed, so that the instant the gyro wheel ceased rotation, the top lost its stability and ceased to balance.

With these defects in mind I have now constructed a gyroscopic top which may be operated entirely independent of any cord in that it combines as an essential part of its mechanism, an operating means for a gyroscopic wheel, and further my top combines the certain structure which will cause a continuance of the stabilizing feature even after a cessation of rotation on the part of the gyroscopic wheel.

Reference is had to the attached sheet of drawings as illustrating one practical embodiment of my invention, and in which drawings,

Figure 1 is a plan view of a top constructed in accordance with my invention;

Fig. 2 is a sectional view taken along the lines 2—2 of Fig. 1, and,

Fig. 3 is a side view of the top.

In all of these views like reference numerals designate similar parts, and the reference numeral 1 indicates a supporting point which may be conveniently associated with a cross bar 2, spaced from a comparatively heavy plate 3 by means of lugs 4, through which project any suitable securing means serving to retain the bar 2 fixed with respect to the plate 3.

A fly wheel 5, forming the gyroscopic element, is mounted upon an axle 6, having bearings in the cross bar 2 at a point in axial alinement with the member 1, the upper end of the axle 6 extending through an opening centrally located in the plate 3, and having associated with it, adjacent its upper end, a gear wheel plate 7, meshing with a relatively large gear 8 driven by a gear 9 meshing in turn with a small gear 10′, forming an integral part of the gear 8, which is rotatably associated with the upper face of the plate 3.

The gear 9 is rotatably associated with respect to the relatively heavy plate 3 by means of a screw 10 passing through the same and engaging at its lower end a cross bar 11, extending at right angles to the first-named cross bar 2, and spaced from and secured to the plate 3.

The lower end of the screw 10 is recessed, so as to afford a bearing to the upper end of the axle 6. A hand crank 12 forms a part of the gear 9, by means of which the latter may be rotated.

It will now be appreciated that upon the gear 9 being rapidly rotated by means of the hand crank 12, the train of gears previously described will cause a rapid rotation to be imparted to the fly wheel 5, resulting in a gyroscopic action being set up by this member. The point 1 is now placed in engagement with the supporting surface, and it will be apparent that the inertia of the plate 3 will gradually be overcome due to the frictional engagement of the axle 6 with the cross bars 2 and screw 10, which are relatively fixed with respect to the plate 3. This action will result in a rotation of increasing velocity being imparted to the plate 3 until the point of intersection between the loss of speed of the fly wheel 5 and increase of speed of the plate 3 has been reached, and the two become approximately constant. The fly wheel 5 will continue to decrease in speed until it loses its gyroscopic force entirely, but, by virtue of the fact that the plate 3 has but a single bearing point with respect to the supporting surface upon which the top is placed, and, due to the fact that the plate 3 and its associated parts are of greater weight than the fly wheel 5, this plate will continue to spin and exert, in turn, a gyro-

scopic action, reproducing in every respect, the action of a conventional spinning top.

Now with a view of producing an even balance, the plate 3 is preferably provided with cut-out or thin portions 13 associated with that side of the plate 3 upon which the gear wheel 8 is mounted, thus producing a relatively even balance of one side of the plate with respect to its opposite side.

From the above it will be appreciated that I have constructed a gyroscopic top which may be capable of operating entirely independent of any awkward driving means, such as a cord, which becomes readily lost in that the driving mechanism will always be an associated part of the top.

Further it will be seen that I have constructed a top which not alone depends for stability upon the gyroscopic action of a fly wheel, but which absorbs a certain amount of such action into its elements, so that a prolonged spinning is produced.

Obviously numerous modifications of structure might well be resorted to within the scope of my invention, which I claim as:—

1. A top, including a plate, a cross-bar attached to and spaced from the lower face of said plate, a rotatably mounted fly wheel positioned intermediate said plate and cross bar, means for rotating such fly wheel, and a supporting point forming a part of such cross bar.

2. A top, including a plate, a cross bar attached to and spaced from said plate, an axle having one of its ends rotatably engaging said cross bar, means for rotatably mounting the opposite end thereof, a fly wheel secured to said axle, and being interposed between said cross bar and plate, and a point extending from said cross bar, said point being in line with said axle.

3. A top, including a plate, a rotatable fly wheel positioned below said plate, a supporting point attached to said plate and being positioned below said fly wheel, and means for rotating said fly wheel.

4. A top including a plate, a cross bar below such plate and spaced therefrom, a supporting point forming a part of such cross bar, a fly wheel interposed between such cross bar and plate, a second cross bar above said plate and extending at right angles to the first-named cross bar, a hand crank mounted upon the upper cross bar, a train of gears terminating in a gear associated with such fly wheel, such hand crank being adapted to drive said train of gears, such plate being formed with openings on the same side of the plate as that on which the train of gears are positioned whereby to provide an even balance for the top.

5. A top, including a plate, a cross bar associated with the lower face of such plate and spaced therefrom, a fly wheel positioned intermediate such cross bar and plate, an axle, the lower end of said axle bearing against the upper face of said cross bar, the upper end thereof extending through and above the upper surface of said plate, said fly wheel being mounted upon said axle, and a train of gears adapted to rotate said axle.

6. A top, including a plate, a cross bar associated with the lower face of such plate, and spaced therefrom, a fly wheel positioned intermediate such cross bar and plate, an axle, the lower end of said axle bearing against the upper face of said cross bar the upper end thereof extending through and above the upper surface of said plate, said fly wheel being mounted upon said axle, and a train of gears mounted upon the upper face of the plate adapted to rotate said axle.

KARL EDISON.