(No Model.)

G. E. SIRE.

GYROSCOPE.

No. 462,512. Patented Nov. 3, 1891.

Fig. 1.

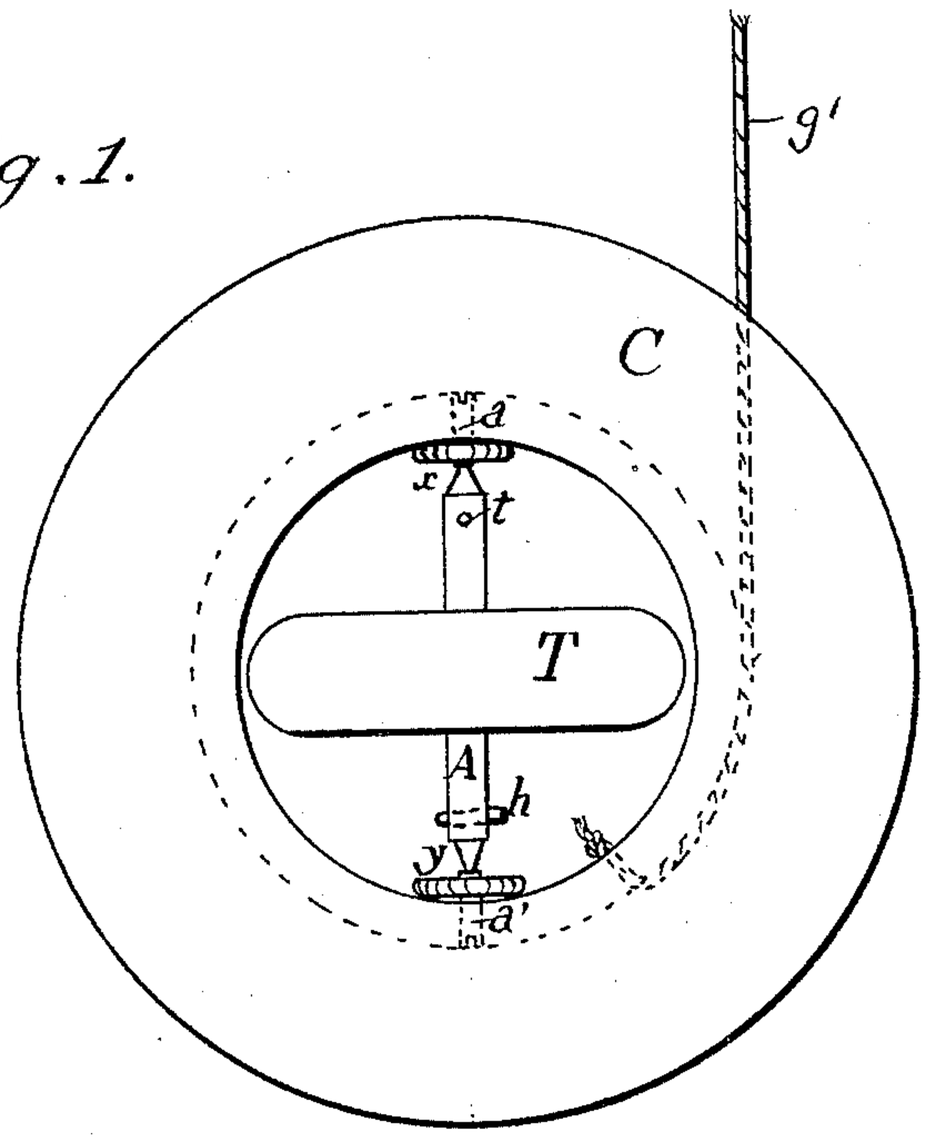
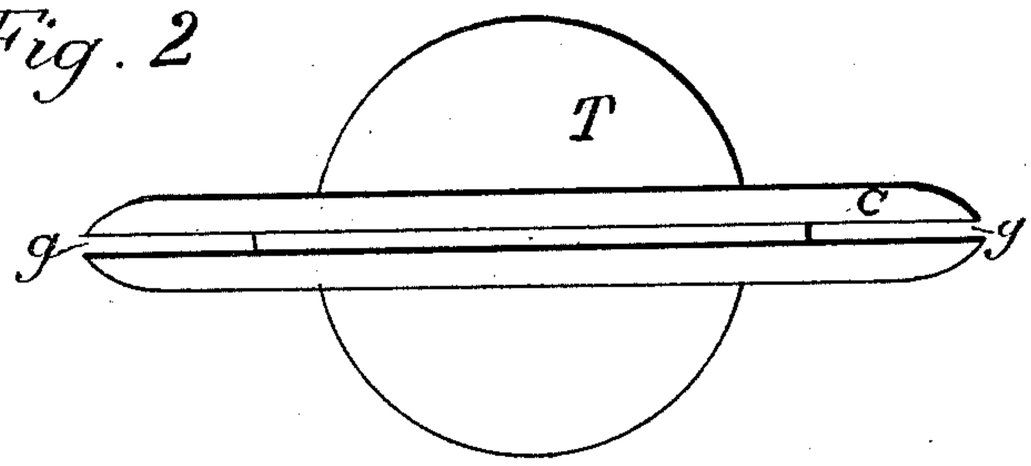


Fig. 2



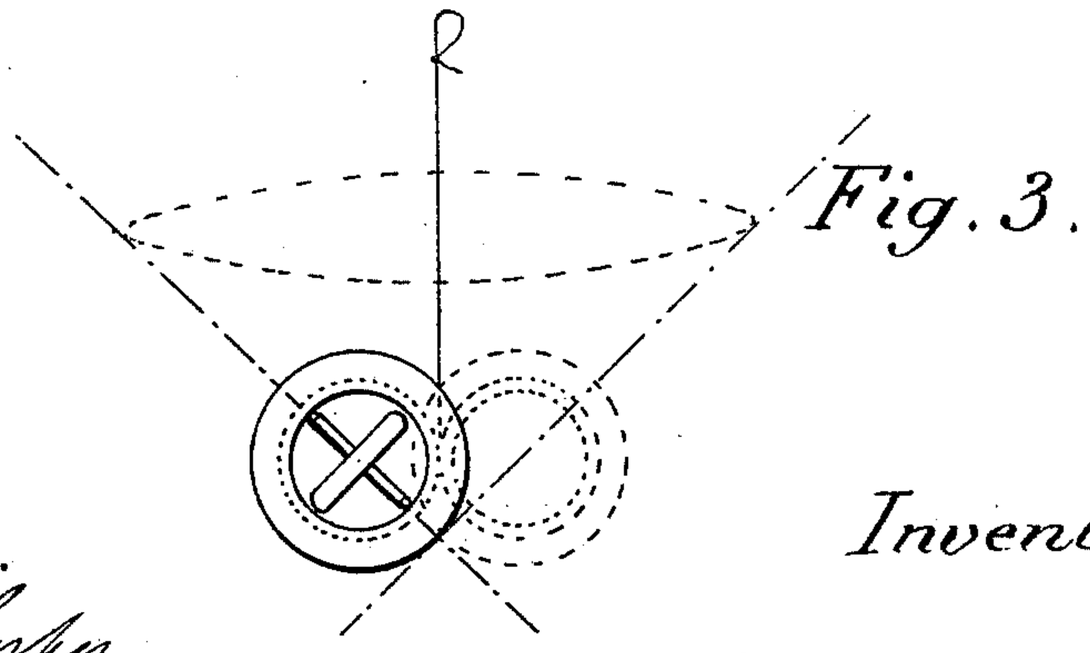


Fig. 3.

Witnesses.
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GEORGES ETIENNE SIRE, OF BESANÇON, FRANCE.

GYROSCOPE.

SPECIFICATION forming part of Letters Patent No. 462,512, dated November 3, 1891.

Application filed June 8, 1891. Serial No. 395,438. (No model.) Patented in France June 23, 1890, No. 206,474.

To all whom it may concern:

Be it known that I, GEORGES ETIENNE SIRE, a citizen of the Republic of France, and a resident of the city of Besançon, in the Department of Doubs, Republic of France, have invented certain new and useful Improvements in Gyroscopes, (for which Letters Patent were granted in France June 23, 1890, No. 206,474,) of which the following is a specification.

My invention relates to improvements in gyroscopes; and the object of my invention is to provide a simple device which may be used as a scientific toy and as an instrument of mechanical demonstration.

To this end my invention consists in a gyroscope constructed substantially as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the gyroscope embodying my invention. Fig. 2 is a plan view of the same, and Fig. 3 shows the position of the gyroscope when in operation.

A heavy metallic disk T has an axis A extending centrally through it, which axis terminates in conical points x y, which turn in the bearings a a', and these are secured in opposite sides of an annular block C, which block is cut away in the center, as shown in Fig. 1, to receive the disk T.

It is necessary in the operation of the gyroscope to transmit a rapid rotary motion to the disk T, and for this purpose a small string is used, which may be wound on one end of the axis A and the end of the string thrust through the hole t in the axis, or it may be wound upon the other end and may terminate in a ring, which may be secured to the projecting pin h of the axis. It will be seen that by winding a string several times around the axis and then quickly withdrawing it the axis will be rapidly revolved, thus rotating the disk T, and the inertia of the disk will keep it in motion for some time.

The block C is substantially like a pulley and has a groove g in its face, and fixed to any point in the groove is a cord g', which is adapted to be wound several times around the grooved portion of the block, and the cord terminates at its free end in a ring, which is adapted to be placed upon the finger. The ring is not shown in the drawings; but as it is a common practice to provide a winding-cord with a ring it is thought unnecesary to show it. If the cord g' is wound several times around the block C and the block is dropped when the disk T is not in motion, the block will drop of its own weight and will unwind with a certain rapidity; but if the disk T is first caused to turn rapidly and the block is then dropped the block will continue to be suspended without unwinding from the cord, and the entire device will take a movement of precession—that is, it will turn in a certain direction around the suspension-cord, while the axis of rotation of the disk will form an angle with this cord; but gravity acting on the device will cause the block to unwind gradually, and this will take place when the axis of rotation of the disk is almost parallel to the suspension-cord. At this moment the block falls a very little, and the whole device again turns around the suspension-cord, but in an opposite direction to that in which it turned before.

Gravity, acting constantly on the device, causes it to descend little by little, the block turning and unrolling little by little until the axis of rotation of the disk approaches a position parallel to the cord of suspension, as before. At this instant the device falls a little again, and the movement of precession is immediately reversed. This reverse movement is produced at each half-revolution of the block—that is, the number of reversions is double the number of turns of the cord around the grooved portion of the block.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A gyroscope comprising an annular block having a grooved face and a central recess, a suspension-cord secured in the groove of the block, and a revoluble disk mounted in the recess of the block, substantially as shown and described.

2. A gyroscope comprising a block having a central recess therein and having a grooved

face, a suspension-cord secured in the grooved portion of the block, and an axis pivoted in diametrically-opposite sides of the recess in the block, said axis carrying a disk, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 8th day of April, 1891.

GEORGES ETIENNE SIRE.

Witnesses:
ROBT. M. HOOPER,
ARTHUR GOOD.