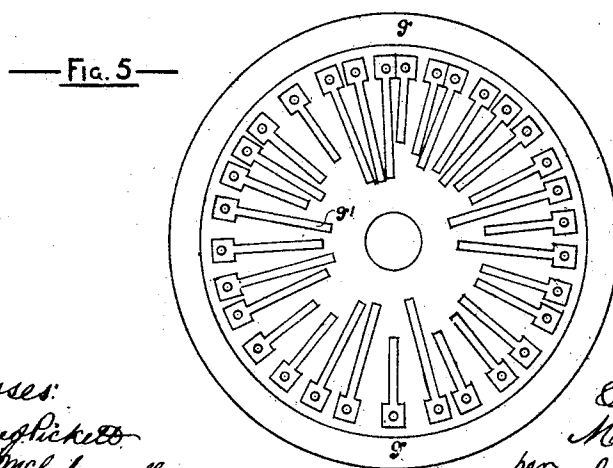
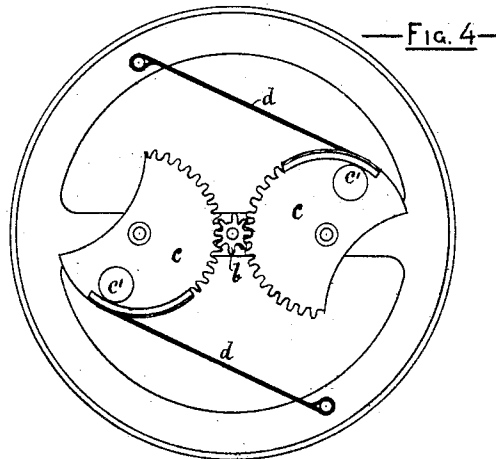
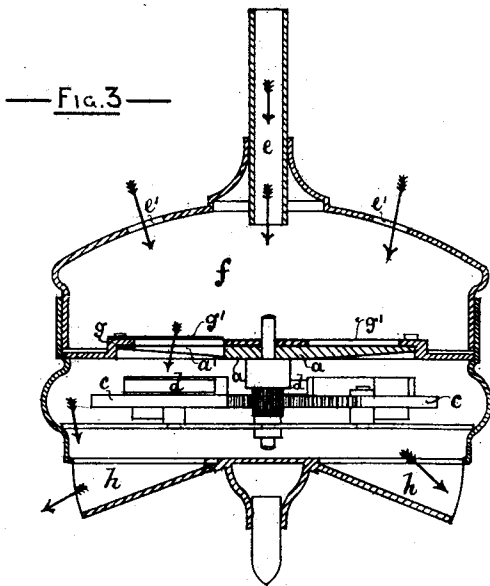
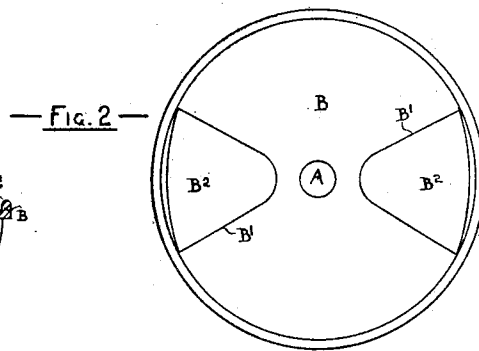
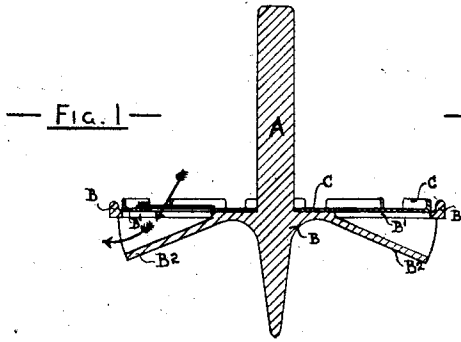


M. A. WIER.
Musical Top or Gyrophone.

No. 229,218.

Patented June 22, 1880.



Witnesses:
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UNITED STATES PATENT OFFICE.

MARSHALL A. WIER, OF SHEPHERD'S BUSH, GREAT BRITAIN.

MUSICAL TOP OR GYROPHONE.

SPECIFICATION forming part of Letters Patent No. 229,218, dated June 22, 1880.

Application filed October 13, 1879. Patented in England September 6, 1878, and in France March 10, 1879.

To all whom it may concern:

Be it known that I, MARSHALL ARTHUR WIER, of Shepherd's Bush, in the county of Middlesex and Kingdom of Great Britain, have invented a new or Improved Gyrophone, of which the following is a specification.

The object of this invention is to afford a means of instruction and amusement for children and others by the aid of musical notes and sounds; and it consists of a musical top or gyrophone of any suitable material, so constructed that on being spun in the usual manner, or made to rotate or gyrate rapidly by any other convenient means, musical notes or sounds are caused to be emitted therefrom, which notes or sounds can be easily varied at pleasure, and airs can be played accompanied or not by harmony. This effect is obtained by constructing the top or gyrophone with any convenient number of openings in the disk of the top itself, in the thickness of the disk, in the center peg of the top, (which may be hollow for that purpose,) or in any other convenient or suitable position, so disposed that as the top rotates or gyrates the air is caused to pass through those of the openings which are uncovered, as hereinafter described.

A plate or plates, tube or tubes, of any suitable or convenient shape, and with one or more openings or spaces in it or them, is or are fitted loosely over the before-mentioned openings in the body of the top itself, and fitted with reeds, (such, for example, as those used in harmoniums, concertinas, or children's mouth-organs,) whistles, or other sound-producing device, and which may be of any desired note or pitch. These openings are arranged in such manner that any one or more of the openings in the body of the top and in the loose plate may be brought into such a position as to leave a clear passage for the air through the reed or reeds.

It will be readily understood that the air passing rapidly through such openings will cause the reed or other sound-producing device to emit musical notes or sounds.

The gyrophone or top may be made to play any tune or number of tunes automatically by arranging the openings and the plates or tubes, as the case may be, so that they may be operated by any suitable arrangement of gearing, springs, &c.

Figure 1 of the drawings represents a section of a musical top or gyrophone constructed in accordance with my invention, and Fig. 2 a plan of the same with the loose reed-plate C removed.

A is the body of the top, in the disk B of which are formed openings B', provided with guide-vanes B² of a semi-conical or half-funnel shape. C is a loose plate lying on the disk B of the top, and having slots or openings in it fitted with reeds in such manner that one or more of them may be brought over the openings B' in the disk B of the top.

It will be seen that, on the top or gyrophone being caused to rotate rapidly, the loose plate C will rotate with it, and air will be drawn by centrifugal action through any of the reeds that may happen to be situated over either of the openings B', such air being caused to pass in the direction of the arrows, Fig. 1, and that on the plate C being held stationary for an instant, so as to change its position with reference to the disk of the top, and so as to bring other reeds over the openings B', different sounds or notes will be emitted, according to the pitch of the reed or reeds which may be over the opening or openings B' in the disk B of the top or gyrophone.

Figs. 3 and 4 show, in vertical section and sectional plan, another arrangement, in which *a* is a horizontal circular plate provided with one or more slots, *a'*, and rotated by means of the pinion *b*, weighted toothed wheels *c*, and india-rubber or other suitable springs, *d*.

g is a plate, on which the reeds *g'* are arranged, and which is seen more clearly in Fig. 5, which shows the reeds arranged for producing a portion of the tune called "The Last Rose of Summer."

The action of this arrangement is as follows: When the top or gyrophone is spun the weighted toothed wheels *c* are caused to make a partial revolution by the weights *c'* being thrown out toward the outer circumference of the top by centrifugal force, thus causing the circular plate *a* to revolve by means of the pinion *b*. As the speed of the top or gyrophone slackens, the centrifugal force decreases gradually, and the weighted toothed wheels *c* are slowly returned to their normal position by the action of the springs *d*. During such return the circular plate *a* is slowly rotated by

means of the pinion *b*, thus bringing one or more of the slots *a'* of the circular plate *a* opposite one or more reeds *g'* in the reed-plate *g*.

When the top or gyrophone is rotated a current of air passes, as indicated by the arrow, through the tube *e* or through the openings *e'* in the upper part of the case to the chamber *f*, thence through such of the reed-openings in the reed-plate *g* as may be over the slot or slots *a'* in the plate *a*, and out through the openings and guide-passages *h* in the under side of the top or gyrophone.

It will be seen that by suitably arranging the relative positions of the openings *a'* in the circular plate *a* and the openings of the reeds *g'* in the reed-plate *g*, the top may be made to play an air, which may be harmonized by arranging that two or more of the openings *a'* shall be opposite two or more of the reeds *g'* at the same time. One top or gyrophone may also be made to play various tunes by changing the reed plate *g*.

Instead of the plates *a* and *g* being in the form of disks, they may be made in other forms—such, for example, as hollow tubes placed one within the other, so as to be concentric and close together.

It will be readily understood that, instead of a top spinning or gyrating on a free vertical axis, the apparatus may be arranged to revolve in bearings placed horizontally or in any other suitable position, and may be set in motion by clock-work or any other suitable power.

Instead of the current of air through the apparatus being produced by centrifugal action,

it may be produced by centripetal action—as, for example, by means of curved guide-vanes, whereby the air would be drawn inward toward the center as the top or gyrophone revolves. This arrangement would necessitate the placing of the reed-plate *g* and the slotted plate *a* in the reverse order as compared with that shown in Fig. 3, the reeds being always arranged to face the direction in which the current of air enters.

I claim—

1. A musical top or gyrophone provided with reeds or other sound-producing devices arranged to have the air drawn through them by centrifugal or centripetal action, in combination with a slotted or perforated plate arranged to be rotated or changed in position in relation to the said reeds or other sound-producing devices as the top or gyrophone revolves, to produce a variety of sounds, tunes, or harmonies, substantially as described.

2. In a musical top or gyrophone, a slotted or perforated disk, plate, cylinder, or tube, adapted to be moved and regulated by hand or by the centrifugal action of weights and counterbalance-springs when the top revolves, for the purpose of putting into or taking out of action the reeds or other sound-producing devices, substantially as hereinbefore described, and illustrated in the drawings.

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