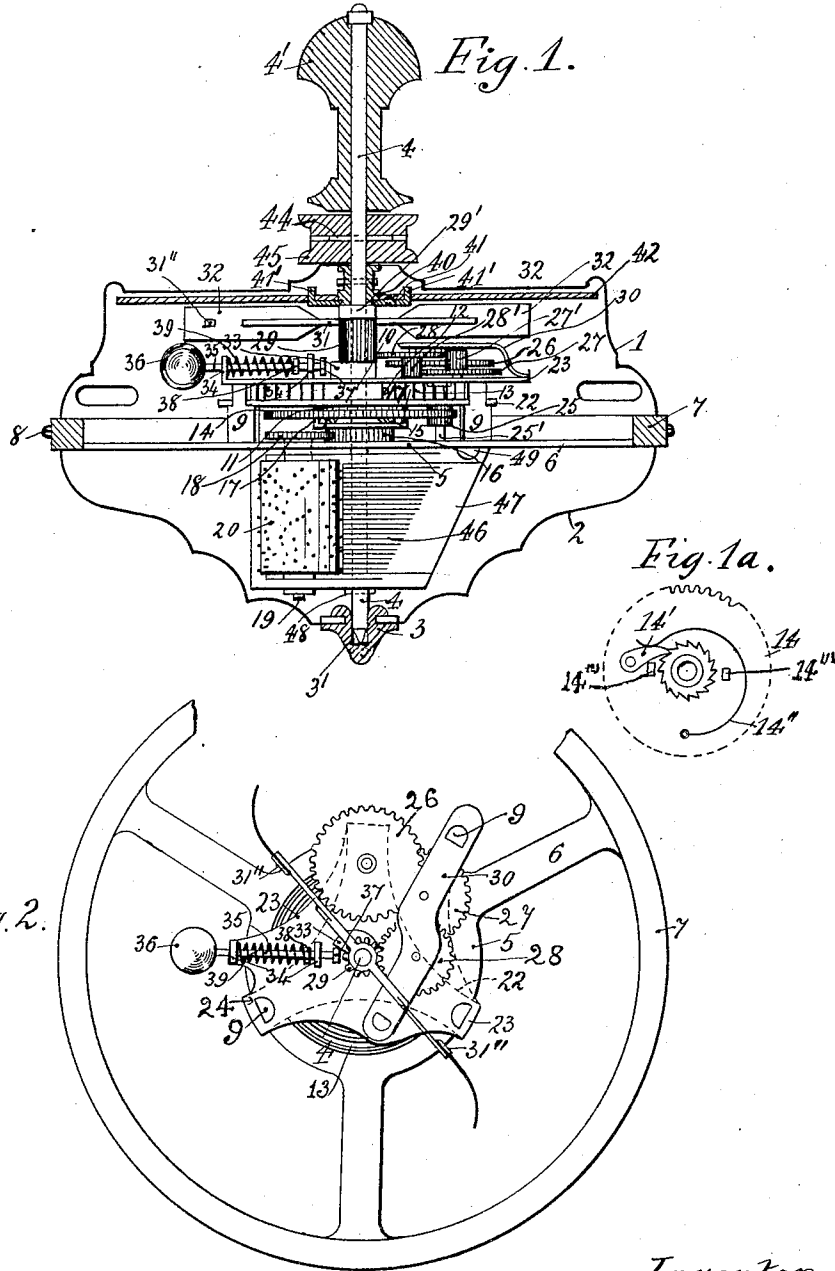


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MUSICAL TOP.
APPLICATION FILED JULY 29, 1912.

1,053,040.

Patented Feb. 11, 1913.

3 SHEETS-SHEET 1.



Witnesses:-

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3 SHEETS—SHEET 2.

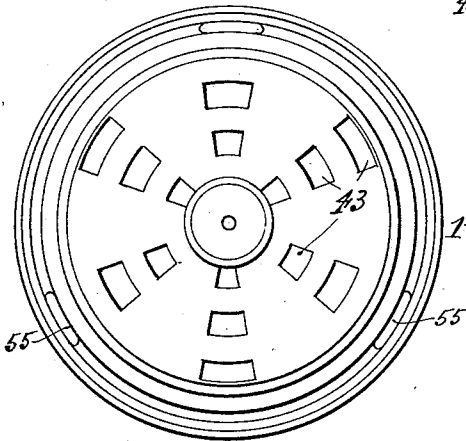
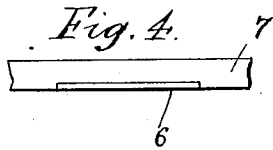
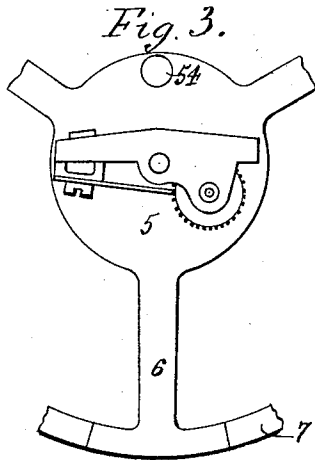
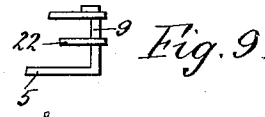
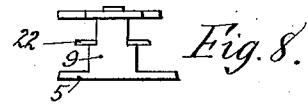
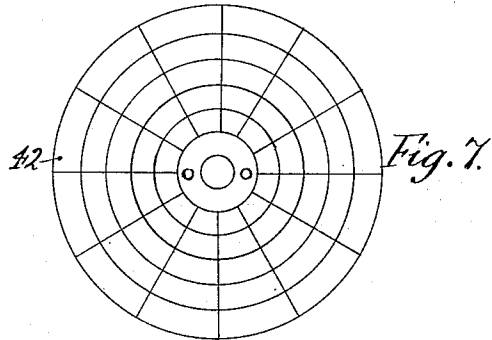
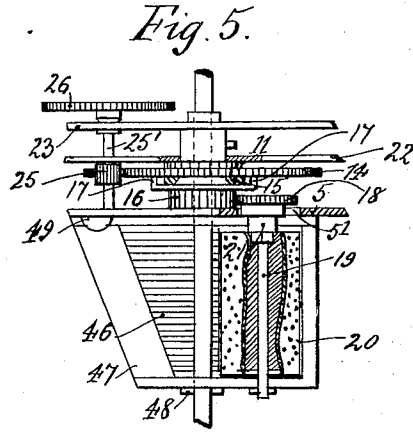


Fig. 6.



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1,053,040.

Patented Feb. 11, 1913.
3 SHEETS—SHEET 3.

Fig. 10.

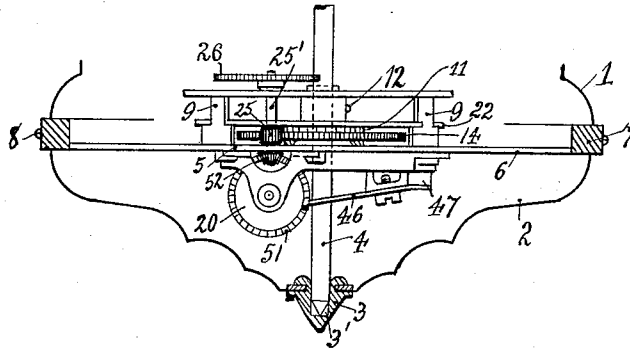


Fig. 11.

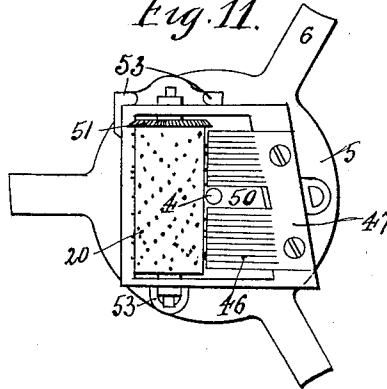


Fig. 12.

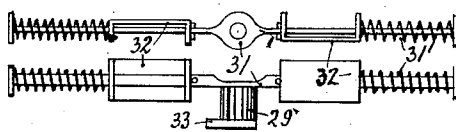


Fig. 13.

Witnesses:-

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UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM KENT, OF LONDON, ENGLAND.

MUSICAL TOP.

1,053,040.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed July 29, 1912. Serial No. 712,219.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM KENT, subject of George V, King of Great Britain and Ireland, and residing at 91 Tab-
ley road, Tufnell Park, London, England,
have invented certain new and useful Im-
provements in or Relating to Musical Tops,
of which the following is a specification.

This invention relates to musical tops of
the type in which there is a central spindle
around which the driving mechanism and
the fans or vanes are arranged, the purpose
of the fans or vanes being to produce a
difference in the velocities of the casing of
the top and the said spindle.

Now, one of the objects of my present in-
vention is to combine color-changing means
with such a type of top, the arrangement
being such that, by one operation of winding
up, the music producing mechanism and
color-changing mechanism and the top are
set in motion simultaneously.

Another object of my present invention
is to improve the stability of the top, which
I do by pivoting the central spindle in the
peg on which the top rotates.

A further object of my invention is to im-
prove the general construction of the top,
the improvements made to this end being
hereinafter described and more particularly
pointed out in the claims.

In order that this invention may be
clearly understood and readily carried into
effect, I will proceed to describe the same
with reference to the accompanying draw-
ings which show the preferred manner of
carrying out this invention.

Figure 1 is a central vertical section,
partly in elevation, of a top in which the
music-producing mechanism is placed ver-
tically, Fig. 1^a is a plan of a detail of Fig. 1,
Fig. 2 shows in plan a portion of the mecha-
nism in the upper part of the top. Fig. 3 is
an under-plan of a portion of the mechanism
in the lower part of the top. Fig. 4 is a part
end elevation of Fig. 3. Fig. 5 shows, on
an enlarged scale, an elevation partly in sec-
tion of a portion of the mechanism shown in
Fig. 1 as seen from the back of the latter
figure. Fig. 6 is a plan on a reduced scale
of the upper half of the casing of the top.
Fig. 7 shows, also on a reduced scale, a plan
of a colored disk which is arranged within
the half of the casing shown in Fig. 6. Fig.
8 is a fractional view in end elevation. Fig.
9 is a side elevation of Fig. 8. Fig. 10 is

a central vertical section partly in elevation
of a portion of a top in which the music-
producing mechanism is placed horizontally.
Fig. 11 is a part under plan of Fig. 10. Fig. 12
is a plan and Fig. 13 a side elevation of
expandable fans or vanes.

Referring to the drawings, the casing,
which is preferably made of thin metal, is
in two parts 1 and 2. At the center of the
bottom portion of the casing is fixed a peg
3 having a round cavity 3' in which the
lower end of the main spindle 4 rotates.
The spindle 4 passes loosely through the cen-
ter of a spindle preferably comprising a
disk-like center portion 5 provided with
three arms 6, 6, the ends of the arms
being let into a heavy metal ring 7
as clearly shown in Figs. 3 and 4.
The ring 7 fits into a groove formed
between the two parts 1 and 2 of the casing
which parts are secured together by means
of a beading 8. The said ring assists to
impart momentum and balance to the top
while spinning. Pressed upward from the
edge of the portion 5 of the spider are three
lugs 9, 9, of which one is clearly shown in
Figs. 8 and 9, for the support of the motor
and driving mechanism as hereinafter ex-
plained.

On the main spindle 4 is fixed a boss 10
provided with a ratchet 11 and a hook 12
to which latter is attached the inner end of
a coil-spring 13, which, when wound up,
drives the music producing mechanism and
the color-changing mechanism when the top
is spun. On the boss 10 is rotatably carried
a driving wheel 14 combined with a pawl 14'
and a spring 14'' (clearly shown in Fig. 1^a).
The wheel 14 is kept in place by a collar 15
provided on the lower end of the boss 10.
The small wheel 16 surrounds but is free
from the spindle 4 and has two projections
17 fixed to it, the ends of these projections
being centered through holes 14''', 14''''
(Fig. 1^a) provided in the driving wheel 14
so that both wheels 14 and 16 rotate to-
gether. The wheel 16 gears with a wheel 18
which is fixed on the upper end of the spin-
dle 19 of the pin-barrel 20 and the boss of
which extends through a hole 5' formed in
the central portion 5 of the spider. The up-
per part of the spindle 19 is made square
as shown at 21 (Fig. 5) where it fits into
the pin-barrel in order to prevent the latter
from turning around independently of the
wheel 18. The lower end of the spindle 19 is

provided with a collar for the purpose of keeping it in place. In order to reverse the direction of rotation of the pin-barrel 20, I may interpose between the wheels 16 and 18 a small wheel or pinion pivoted to the spider 5 or to the upper part of the frame 47.

Arranged above the ratchet 11 is a plate 22 somewhat of triangular form, which has a hole at its center for the reception of the boss 10 and another hole through which the pinion 25 and its spindle 25' pass. The extremities of the plate 22 rest upon the lower steps or shoulders of the lugs 9. The plate 22 supports and keeps the coil-spring 13 in place. Above the coil-spring 13 is arranged a cover plate 23 provided with three slots 24 through which the upper ends of the lugs 9, 9, are passed and then bent down on to the cover plate 23. The coil-spring 13 is thus efficiently housed between the two plates 22 and 23. The outer end of the coil-spring 13 is fastened to one of the lugs 9. The wheel 14 engages the pinion 25 the spindle 25' of which also carries a wheel 26. The wheel 26 gears with a train of two wheels, 27 and 28, through the medium of their respective pinions 27' and 28', and the wheel 28 engages a pinion 29 which rotates around the main spindle 4. The wheels 27 and 28 are pivoted between the cover plate 23 and a bridge-piece 30 fixed at its ends to the cover-plate. A bar 31 is secured to the upper part of the pinion 29 and carries at each end a fan blade 32, either fixed to the bar 31, as in Figs. 1 and 2, or, as in Figs. 12 and 13, adapted to slide along the bar 31 against the pressure of springs 31', 31', under the action of centrifugal force as hereinafter explained. In Figs. 1 and 2, the ends of the bar 31 pass through the fan blades 32, 32, and are then bent over as at 31'', 31'', thereby assisting in holding the fan-blades in position. The fan regulates the speed of the wheels. In the expanding form of fan shown in Figs. 12 and 13, the bar 31 is made of oblong cross-section, so as to prevent the fan-blades 32, 32, from turning over. On the lower end of the pinion 29 an abutment 33 is provided. Two lugs 34 are pressed up from the cover plate 23 each having a hole to receive a rod 35 one end of which carries a metal ball 36 while the other end thereof carries a small knob 37 which prevents the rod from coming out of the lugs 34, 34 and also stops the fan by engaging the abutment 33 at the required time. The rod 35 has a collar 38 fixed thereon and also carries a sensitive spiral spring 39, one end of the spring pressing against the collar 38 while the other end presses against the outer lug 34. When the top is spun, the centrifugal force set up causes the rod 35 to move outward and so releases the knob 37 from the abutment 33, thereby leaving the fan free to

rotate around the main spindle. The fan rotates in the opposite direction to that in which the top is spinning.

On the main spindle 4 is fixed a boss 40 having a small disk provided with two or more arms 41 the extremities 41' of which are bent upward and fit into holes formed in a large colored disk 42 having concentric circles divided into sections of different shades of bright colors (see Fig. 7). A collar 29' is loosely fitted on the spindle 4 between the bar 31 and the part 41. The top of the casing of the top has a number of perforations 43, 43, and forms a mask for the colored disk as illustrated in Fig. 6 of the drawings. The different colored sections of the card 42 should be made a little longer than the length of the perforations 43. The mask is dark-colored,—preferably black. As shown in Fig. 6, the perforations are arranged on five concentric circles, each circle having three perforations. The perforations on one circle alternate with the perforations on the next circle. In some cases each circle may contain two perforations arranged diametrically opposite each other, which would allow for more changes of colors, but obviously in that case when the top is spinning the colors would not be seen so distinctly as they would by having three perforations in each circle, as shown in Fig. 6. Through the main spindle 4 is passed a pin 44 (Fig. 1) which is intended to keep in place a pulley 45 of wood, thin metal or other material. Above the pulley is arranged the handle 4' within which the spindle 4 rotates when the handle is held during the preliminary spinning of the top.

The pin-barrel 20 and sounding comb 46 are supported on a frame 47 which is conveniently pressed out of a single piece of metal. As shown in Figs. 1 and 5, the frame 47 is arranged vertically and has a hole in each end in order to allow the lower portion of the main spindle 4 to pass through and rotate within it. The vertical frame 47 is secured on the spindle 4 by means of a pin 48 or otherwise, and is prevented from moving out of place by a lug (or lugs) 49 pressed up from the central portion 5 of the spider.

In Figs. 10 and 11 the pin-barrel and sounding comb are placed horizontally under the spider 5, 6. As shown in Fig. 11 an opening 50 is left in the center of the sounding comb through which the main spindle 4 passes. The pin-barrel has a bevel or other suitable wheel 51 at one end gearing with a pinion 52 which is mounted on a spindle passing through the central portion 5 of the spider and the plate 22 and cover-plate 23. The frame 47 is prevented from moving out of its place by means of the lugs 53, 53, pressed up from the said portion 5.

The heaviest part of the music-producing mechanism should be fixed opposite the heaviest part of the remaining mechanism, so as to insure as even a balance as possible, and, if necessary, for this purpose a small weight should be fixed on the said portion 5 in a suitable place, such as at 54 in Fig. 3, before placing the mechanism in its casing; the top then spins free from vibration. Sound exit holes 55 (Fig. 6) are made in the upper part of the casing.

To operate the top proceed as follows: First wind string on pulley 45, then hold knob 4' in the hand, and suddenly unwind string. By so doing, the casing 1, 2 is rotated through the medium of the spindle 4, spring 13 and the spider 5, 6. If the spring 13 is slack the pull on the string causes the pawl 11 to click or pass over the teeth of the ratchet during the time that the inertia of the casing 1, 2, is being overcome thus causing the casing to lag behind and allowing the spring to be wound up, the lower end of the spindle 4 then rotating in the peg 3. When the casing has gathered sufficient speed, the centrifugal force set up causes the brake knob 37 to be released from the abutment 33, so that when the string has been completely unwound the spring 13, being free, commences to unwind and drives the spindle 4 in the opposite direction of rotation to the casing and at the same time drives the wheel 14 and the mechanism connected therewith. Consequently the music commences to play and there is a comparatively slow movement of the colors on the disk 42 past the perforations 43, 43 as the disk lags in its rotation relatively to the mask. When the speed of the casing has fallen to a certain point the brake-knob 37 moves inward and engages the abutment 33, thereby stopping the whole of the internal mechanism relatively to the casing 1, 2. The spring 13 may be wound up by holding the casing 1, 2, stationary and twisting the pulley 45.

A star-wheel and finger (not illustrated) may be used, if desired, to prevent overwinding of the coil spring.

In the construction of these tops it is advisable to make them as low as possible, especially so the mechanism, which should also be light in weight.

I claim:

1. In a top, a casing, a central spindle loosely mounted in said casing, music producing mechanism, a member fixed to said casing and carrying said music-producing

mechanism, color-changing mechanism, a disk included in said mechanism carried by said spindle, a spring connected at one end to said member and at the other end to said spindle and adapted to operate said music-producing mechanism, means for winding up said spring, means adapted to be operated by the centrifugal force set up by the top when spinning for releasing said spring, and means for operating upon said last-mentioned means so as to stop the unwinding of said spring when said centrifugal force falls to a predetermined value.

2. In a top, a casing, a central spindle loosely mounted in said casing and also loosely mounted in the peg (3) of the top, music-producing mechanism, a member fixed to said casing and carrying said music producing mechanism, color-changing mechanism, a disk included in said mechanism carried by said spindle, a spring connected at one end to said member and at the other end to said spindle and adapted to operate said music-producing mechanism, means for winding up said spring, means adapted to be operated by the centrifugal force set up by the top when spinning for releasing said spring, and means for operating upon said last-mentioned means so as to stop the unwinding of said spring when said centrifugal force falls to a predetermined value.

3. In a top, a casing, a perforated top to said casing, a spider extending across and fixed to said casing, a central spindle loosely mounted in said casing and freely passing through said spider, a color-carrying disk carried by said spindle and visible through said perforated top, a driving pulley (45) carried by said spindle, a fan, a pinion (29) attached to said fan and loosely mounted on said spindle, an abutment (33) on said pinion, a centrifugal governor adapted to cooperate with said abutment, means for carrying said centrifugal governor on said spider, a driving spring (13) fixed at one end to said spindle, means for attaching the other end of said spring to said spider, and gearing adapted to be driven by and arranged intermediate of said spring and said music-producing mechanism and said pinion.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FREDERICK WILLIAM KENT.

Witnesses:

R. WESTACOTT,

H. T. P. GEE.