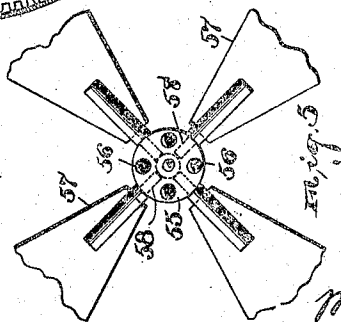
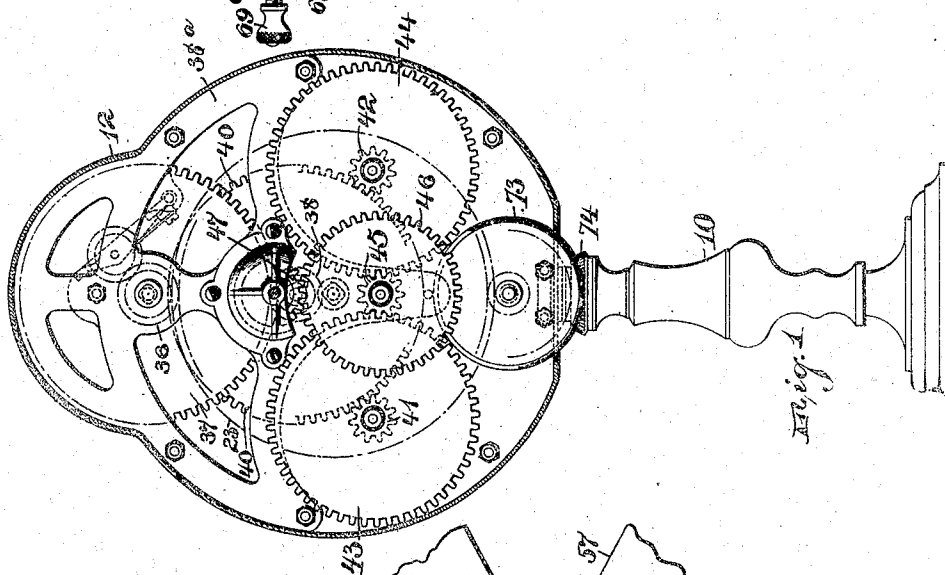
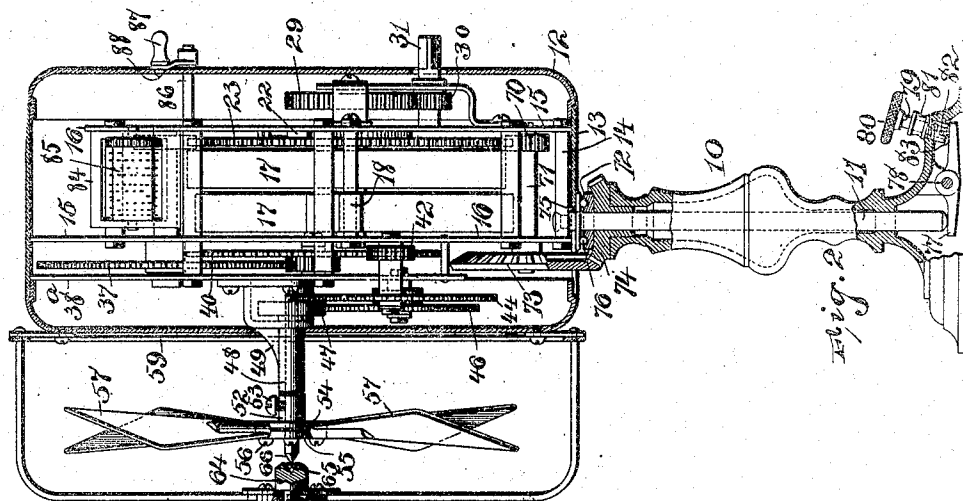


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 SPRING FAN.  
 APPLICATION FILED APR. 27, 1909.

936,668.

Patented Oct. 12, 1909.  
 2 SHEETS—SHEET 1



WITNESSES:  
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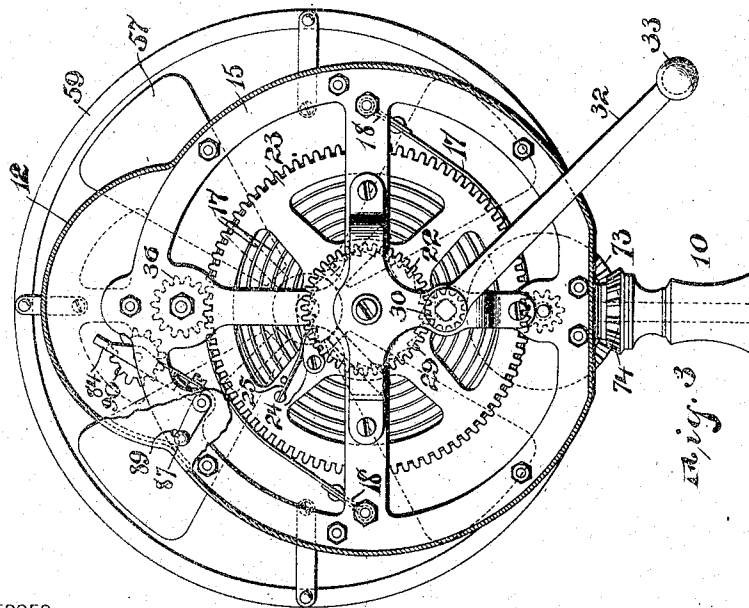
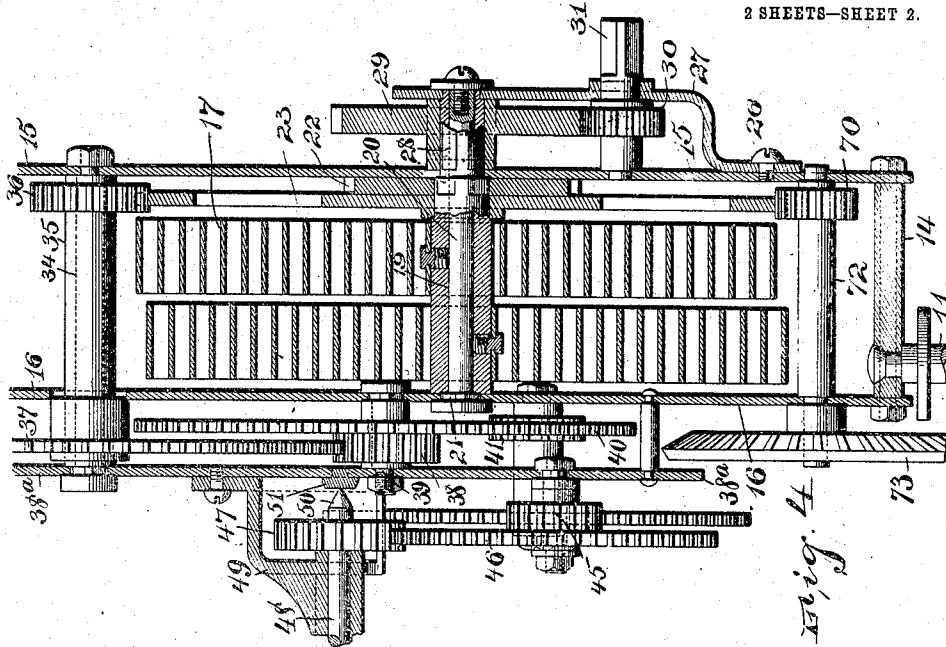
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# UNITED STATES PATENT OFFICE.

DARIO ROBERTI, OF NEWARK, NEW JERSEY.

## SPRING-FAN.

936,668.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed April 27, 1909. Serial No. 492,551.

*To all whom it may concern:*

Be it known that I, DARIO ROBERTI, a subject of the King of Italy, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spring-Fans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved fan, and particularly to a portable fan that is mounted on a standard and has a rotating fan consisting of blades, the pitch of the blades being adjustable so that the force of the current of air being propelled can be regulated.

The invention is further designed to provide a fan that is operated from a spring motor and is provided with a brake attachment so that the speed of the fan can be regulated.

A still further improvement consists in the mounting of the fan and its casing on a standard so that it rests thereon in a fixed position, or it can be arranged to rotate steadily in a certain direction to distribute the air to better advantage, the rotating apparatus being actuated by the same spring or springs that actuate the fan blades.

The device also comprises a music-box attachment which can be placed in or out of operative connection with a mechanism for propelling the fan.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a face view of the fan with the blades removed, and showing the casing in section. Fig. 2 is a side view of the fan and its standard, showing the casing in section. Fig. 3 is a rear view of the device with the casing broken away, and Fig. 4 is a vertical central section through the spring and the transmission gearing. Fig. 5 is a detail view of the hub of the fan and the method of attaching the blades.

The device consists of a hollow standard 10 which can be of any usual configuration and is provided with a centrally arranged rod 11 which is rotatably mounted in the standard and also movable longitudinally therein as will be described hereinafter, al-

though the longitudinal movement is not necessary where the fan is to be made fixed to the standard. Mounted on top of the rod 11 is a casing 12 having a bottom 13 secured to the rod 11. To the top of the rod 11 is secured a block 14 from which extend the uprights 15 and 16 which extend upwardly and between which are mounted the springs 17, which springs have one end, as 18, of each one secured to the uprights, the other end of each spring being secured as in Fig. 4, or any other suitable way, to a sleeve 19 which is arranged to rotate on the shaft 20, the shaft 20 being held against rotation by a squared or rectangular portion 21, on the front end, which fits in the upright 16.

The usual ratchet 22 is secured to the end of the sleeve 19 to hold it against unwinding, except with the gear 23 to which the ratchet 22 is fastened, the pawl 24 co-acting with the ratchet, being normally held down by the spring 25. Secured by a screw 26 to the upright 15 is a bracket 27 which is provided with a rotatable shaft 28 having projections to fit in the recesses in the shaft 20 or any other detachable operative connection which is operated from the gear 29 which in turn is turned by a gear 30, the shaft of which has a squared portion 31 to receive a lever 32 of the handle 33 so that the spring or springs, if more than one is placed in parallel relation, can be wound.

Rotatably arranged on the rod 34 is a sleeve 35 on which is secured a gear 36 which meshes with the gear 23, and on the outer end of the sleeve is placed a large gear 37, the shaft 35 extending beyond the gear and being mounted in a plate 38 which is fastened by any suitable means to the upright 16. This train of gearing that has been described and the description of which will be continued is designed to increase the revolutions. The gear 37 meshes with a gear 38 which is mounted on the same stud 39 as a larger gear 40. The larger gear 40 meshes with two smaller gears 41 and 42 which are mounted slightly below and on each side of the center of the gear 40, these gears rotating in unison with larger gears 43 and 44 respectively, which both mesh with a smaller gear 45 which is mounted on a small shaft and rotates in unison with a larger gear 46 which meshes with another gear 47, the gear 47 being fastened to the shaft 48 which is the shaft on which the fan is mounted. The

shaft 48 rotates in a tubular bearing 49 which projects out from the plate 38<sup>a</sup> and forms a housing for the gear 47. To reduce the friction the inner end of the shaft 48 is tapered as at 50 and fits up against a wear-  
 5 ing plate or disk 51. The tubular bearing 49 provides a long bearing so that the shaft is held in this bearing alone, a collar 52, fastened by a suitable set-screw 53, holding the  
 10 shaft in place and also acting to hold the fan, since it is integral or secured to a disk 54 which is adjustable toward and from a disk 55 by means of the screws 56. The blades 57 are provided with studs 58 which fit in the  
 15 recesses in the opposed faces of the disks 54 and 55 and can be fastened at a desired angle, but when the screws 56 are unloosened they can be turned so that the pitch can be regulated. A frame 59 is suitably fastened  
 20 to the front of the casing 12 and has the arms 60 to protect the fan blades from damage and an unwary person from injury. These arms are joined by a disk 61 to which is secured a hollow cap 62 in which is slid-  
 25 ably arranged a rod 63 which has a head 64 thereon, the head being recessed as at 65 to receive the pointed end 66 of the shaft 48.

A spring 67 pushes against the collar 68 having one end abutting thereon and having  
 30 the other end abutting against the disk 61 so that the head 64 is normally pulled away from the end of the shaft 48, but a screw 69 can be used to force the rod 63 against the action of the spring, and a braking action  
 35 can be put on the shaft 48 to regulate the speed of the fan. The gear 23 meshes near the bottom of the casing with a smaller gear-wheel 70 which is mounted on the shaft 71 and is provided with a beveled gear 73. The  
 40 beveled gear 73 meshes with a fixed beveled rack 74 of a circular form which supports a disk 72, and between this disk 72 and a plate 75 on the bottom of the casing are the balls 76 which form a ball-bearing. When the  
 45 spring is wound up the fan can be held against rotation by the brake being placed in engagement with its shaft, and after the spring is wound the brake can be released and the transmission gears between the  
 50 spring and its shaft and the fan and its shaft will cause a rotation of the fan for a long time at a high speed with a slight relaxation of the spring.

When the fan rotates the gear 73 rotates  
 55 also on account of its connection with the shaft of the spring, and engaging the circular rack on the standard it causes the casing to revolve on the standard so that the current of air is distributed around a  
 60 room or in the vicinity of where the fan is placed. To prevent the rotation of the casing the shaft 11 can be raised by the lever 77 which is pivoted intermediate of its ends at 78 to the inside of the casing, and which  
 65 has its end opposite the one engaging the

bottom of the rod 11 adapted to be forced downward by the stud 79 on which the finger-piece 80 is arranged. When the finger-piece 80 and its stud 79 are forced  
 70 down the rod 11 is shoved up so that the gear 73 is disconnected from the rack 74. The stud 79 slides in a thimble 81 which has a recess 82, and a pin 83 passing through the stud fits in the recess 82, when the cas-  
 75 ing is down and adapted to be rotated, but when the finger-piece 80 and its stud 79 are pushed down to raise the rod 11, the finger-piece is slightly turned and the pin 83 is placed at an angle to the recess 82 and the rod 11, and the casing with its fan is  
 80 prevented against descending and thus stands rigid in any position it is placed, but it can be rotated easily by hand to adapt it for throwing the air current in any de-  
 85 sired direction.

If desired, a musical attachment can be provided which consists of a frame 84 hav-  
 90 ing the ordinary roll 85 therein which engages with a series of spring forks or strips, the frame being mounted pivotally on a rod 86.

The device is operated by a gear 90 mesh-  
 95 ing with the gear 36 of the driving mechanism and is actuated, that is, the gear 90 is held into or out of mesh with the gear 36 by a handle 87 which has a finger 88 which  
 100 is adapted to fit in the holes 89 in the back of the casing 12, as will be seen from Figs. 2 and 3.

Having thus described my invention, what I claim is:—

1. A fan comprising a standard, a casing on the standard, a spring motor in the cas-  
 105 ing, a fan mounted on the front of the casing, means for operating the fan from the spring motor, a guard surrounding the fan, and an adjustable brake mounted in the guard and adapted to bear on the end of the fan for varying its speed.

2. A fan comprising a standard, a casing  
 110 on the standard, a spring motor in the casing, a fan on the front of the casing, a shaft projecting from the casing on which the fan is mounted, an operative connection be-  
 115 tween the shaft of the fan and the spring motor for propelling the fan, a guard over the fan, a sleeve on the guard, a rod adapted to engage the end of the shaft of the fan to vary its speed, a spring to normally with-  
 120 draw the rod from the shaft, and a screw to force the rod in engagement with the shaft.

3. A fan comprising a standard, a casing  
 125 on the standard, uprights in the casing, a spring motor arranged between the uprights, winding means, a shield, a bearing secured to the shield, a shaft in the bearing, an operative connection between the shaft and the spring motor, and a fan secured on the  
 130 projecting end of the shaft.

4. A fan comprising a standard, a casing  
on the standard, uprights in the casing, a  
spring motor mounted between the uprights,  
a shaft arranged to project from the casing,  
5 a fan on the projecting end of the shaft, an  
operative connection between the shaft and  
the spring motor, a beveled gear in the cas-  
ing and operated from the spring motor, a  
circular rack on the top of the standard with  
10 which the beveled gear is adapted to mesh,  
a rod in the standard, a lever pivoted in the  
standard and having one end adapted to  
raise the rod, and a finger-piece in the stand-  
ard adapted to actuate the lever to raise the  
15 rod and to lock the rod in its raised position.  
5. A fan comprising a standard, a casing  
on the standard, uprights in the casing, a  
spring motor mounted between the uprights,  
a shaft arranged to project from the casing,  
20 a fan on the projecting end of the shaft, an

operative connection between the shaft and  
the spring motor, a beveled gear in the cas-  
ing and operated from the spring motor, a  
circular rack on the top of the standard with  
25 which the beveled gear is adapted to mesh, a  
rod in the standard, a lever pivoted in the  
standard and having one end adapted to  
raise the rod, a thimble in the standard hav-  
ing a recess therein, a stud in the thimble,  
30 a finger-piece on the stud, and a pin on the  
stud adapted to enter the recess in the thim-  
ble and adapted to be thrown out of register  
with the recess when the stud is operated.

In testimony, that I claim the foregoing, I  
have hereunto set my hand this 22 day of 35  
April 1909.

DARIO ROBERTI.

Witnesses:

WM. H. CAMFIELD,  
E. A. PELL.