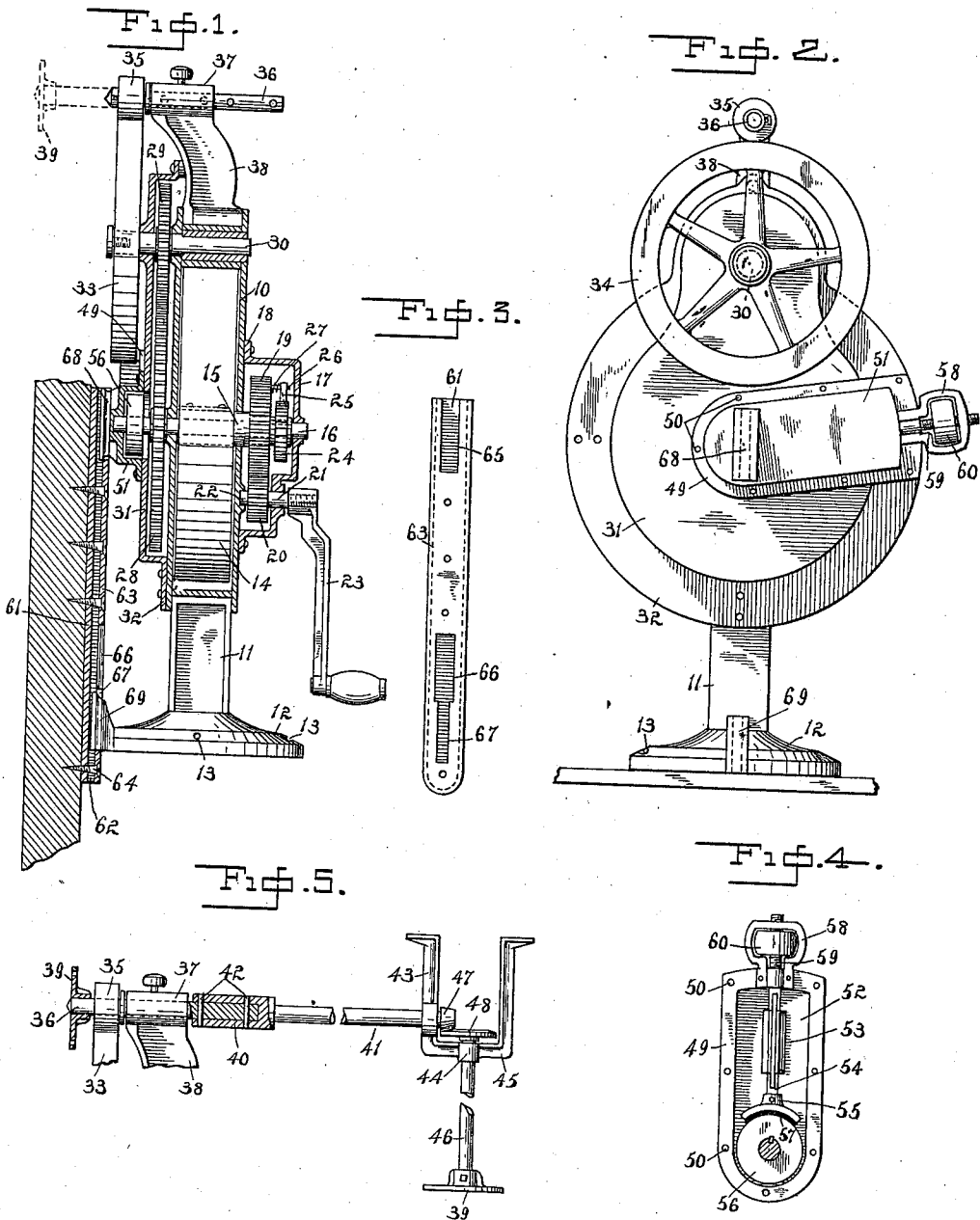


L. LEFEBVRE.
 SPRING MOTOR FAN.
 APPLICATION FILED NOV. 3, 1909.

1,002,065.

Patented Aug. 29, 1911.



WITNESSES:

Matthew J. Marty
 Chas. F. Bassett

INVENTOR

Louis Lefebvre
 By Frederick Benjamin
 ATTORNEY

UNITED STATES PATENT OFFICE.

LOUIS LEFEBVRE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JAMES A. BUCHANAN, OF CHICAGO, ILLINOIS.

SPRING-MOTOR FAN.

1,002,065.

Specification of Letters Patent.

Patented Aug. 29, 1911.

Application filed November 3, 1909. Serial No. 526,156.

To all whom it may concern:

Be it known that I, LOUIS LEFEBVRE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Motor Fans, of which the following is a specification.

My invention relates to spring motor fans and the chief objects of the improvements which constitute the subject matter of this application for patent are:—to provide a simple and effective spring operated mechanism for a rotary fan, and to furnish a friction drive for the fan spindle in order to produce a smooth and noiseless action, one of the gears being constructed with a comparatively heavy rim so that it will have the governing function of a fly wheel, thus producing a steady and even movement of the entire train of gears.

Other objects of the invention are, to supply a protective casing for the motor parts that may be supported upon a table or other horizontal surface where it will be maintained upright by its own weight; to furnish means whereby the device may be removably attached to a bracket secured to a wall or other vertical support, and to provide extension shafts and supports and friction gearing for imparting motion to a fan when suspended from the ceiling of the room, the spindle for the fan being made adjustable to facilitate this arrangement.

A further object is to furnish means for regulating the speed of the motor, or stopping its movement entirely.

The advantages principally to be desired from the employment of my improved motor fan will be found in the ease with which it may be moved from place to place and thus readily located at any point where needed, and the opportunity which is afforded by the attaching flanges to use the same appliance for running a fan pendant from the wall or ceiling. The economy in the application of a manually operated mechanism for storing power is an important feature, and the fact that the portability of the machine will permit of its extended use without the inconvenience of being dependent upon ordinary prime movers for supplying power, such as electrical and other motors and engines which are not everywhere available.

I accomplish the desired objects by means of the apparatus illustrated in the accompanying drawing which forms a part of this application, the important details of construction being disclosed in the following views.

Figure 1 is a vertical median section of my improved spring motor, showing the manner of attaching the casing to a wall; Fig. 2 is a rear elevation showing the apparatus supported in operative position upon a table; Fig. 3 is a front elevation of the wall bracket for supporting the casing; Fig. 4 is a view of the inner side of the brake device detached from the main casing, and Fig. 5 is a fragmentary view showing the extension attachments and supports.

Referring to the details of the drawing, the numeral 10 indicates a cylindrical casing supported on a standard 11, which in turn rests upon a base 12, adapted to rest upon a table or other similar support. This base may be cast solid or weighted with lead in the usual manner, to give it stability, and is supplied with holes 13 for the passage of securing screws or bolts, by means of which the apparatus can be firmly fastened to a support, this being desirable when an unusually strong motor spring is employed in order to resist the force applied in winding up the main spring.

The casing 10 constitutes a spring box in which is arranged a coiled flat spring 14 of the type known as clock springs, attached at its inner end to a hollow shaft or sleeve 15, while its outer end is suitably secured to the side of the inclosing casing or box 10, the details of the fastenings of said spring not being shown, since such attachments are common in the art and therefore well understood. The sleeve 15 is mounted upon a shaft 16 which is concentric with the cylindrical casing 10 and projects through the casing walls at each end. The front end of the shaft extends beyond the said sleeve and is journaled in the outer wall of a housing 17, secured to the face of the spring box 10 by a flange 18. The said hollow shaft or sleeve 15 projects into the cavity of the housing 17 and has mounted thereon a gear wheel 19 which meshes with a driving pinion 20, mounted on a short shaft 21, which has a bearing in the casing wall at the inner end 22, while the forward end projects through

the wall of the housing, and is provided with a winding crank 23. Upon the main shaft 16 within the housing 17 is mounted a ratchet wheel 24, and the teeth of this wheel are engaged by a pawl 25 pivotally mounted on a pin or stud 26 affixed to the sides of the gear wheel 19 mounted upon the adjacent end of the said sleeve or tubular shaft 15 as mentioned. The said pawl 25 is furnished with a spring 27 to hold it in engagement with the teeth of the ratchet 24. The said ratchet teeth are directed in such a manner that when the crank 23 is turned in one direction to wind the spring 14 said pawl will yield on the teeth so that the winding of the spring will not affect the shaft 16, but when the spring is released after being wound, the gear 19 will turn in the opposite direction and the pawl 25 will then engage the ratchet teeth and turn the main shaft 16. The rear end of the said main shaft carries a comparatively large gear wheel 28, mounted outside the spring box 10, and this gear meshes with a smaller pinion 29, keyed upon a counter-shaft 30 journaled above the spring box. The gear 28 and pinion 29 are covered with a plate or housing 31, secured to the rear face of the spring box 10 by a flange 32. The said countershaft 30 projects through the housing plate 31 and has mounted upon the extremity a friction gear 33. It will be noted that this wheel is spoked and provided with a comparatively thick and heavy rim 34, thus adapting the wheel to perform the office of a balance or fly wheel in addition to its power transmitting function. The periphery of said gear 33 engages the face of a much smaller friction pinion 35, carried by a fan spindle 36, journaled in a suitable bearing or box 37, attached to a bracket arm 38, mounted upon the spring box 10. This spindle is provided with a removable head 39 for the attachment of fan blades (not shown), and is adapted to be shifted longitudinally in the box 37. The projecting portion when so shifted is adapted to engage the bore of a sleeve 40 (Fig. 5) attached to an extension shaft 41, pins 42 serving to secure the sleeve in position on the spindle. The opposite end of the extension shaft is journaled in one arm of a U-shaped hanger or bracket 43. This hanger is intended to be attached to the ceiling, and extending vertically through a box 44 in the connecting bar 45 of the hanger is a shaft 46 the lower end being adapted to carry the fan head 39. The horizontal extension shaft imparts motion through bevel friction gears 47, 48, mounted respectively on said extension shaft and the vertical spindle.

The speed of the train of wheels when actuated by the spring is regulated by a friction governor arranged on the rear face of the housing 31 supported by a casing plate

49, secured to the housing by screws or rivets 50. This plate has a raised portion 51 forming a recess 52 upon the under side which covers the end of the main shaft and extends radially therefrom. Arranged to slide longitudinally in a bearing 53 in this recess is a rod 54, having upon its inner end a shoe 55 which engages a friction wheel 56, keyed upon the main shaft 16. This shoe is provided with a facing 57 of rubber, or other similar material, to form a suitable contact. The outer portion of the rod 54 is supported in a loop-shaped bracket 58, and furnished with threads 59 engaged by a thumb nut 60 arranged within the loop, and thus adapted, when turned, to regulate the pressure of the shoe 55 against the friction wheel 56.

For attaching the apparatus to a wall I provide a bracket consisting of a bar 61 having a marginal flange 62 forming a channel which is covered in by a top plate 63, the two plates thus arranged being secured to the wall by screws 64. The outer or top plate is provided with an upper marginal slot 65 and a lower slot 66, the latter having its lower portion 67 contracted, as shown in Fig. 3. The said slots are adapted to be engaged respectively by projections 68, 69, on the casing and base of the apparatus, said projections having lateral flanges which interlock with the margins of the top plate when introduced into their slots and thus hold the device firmly in position and yet will permit of its ready removal when desired.

The operation of the apparatus will be readily understood by inspection of the drawing and reference to the foregoing detailed description of the parts. When the spring has been wound by revolving the crank, the speed will be regulated to suit the special requirements, by turning the thumb nut 60 so as to vary the pressure of the shoe 55 upon the friction wheel 56. In machines adapted to be manually wound and with a properly proportioned spring the mechanism may be arranged to run an average of from one to three hours with a single winding, thus making the portable style of device available for all ordinary occasions.

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

1. In a rotary fan, the combination of a casing containing a suitable motor, a base for the casing adapted to rest upon a horizontal surface, means for removably attaching the casing to a vertical support, a fan spindle journaled on said casing, an extension connected therewith, a hanger supporting one end of said extension and adapted to be attached to a suitable support, a second spindle journaled in said hanger, and friction gearing connecting said spindles.

2. In a rotary fan, the combination of a casing containing a suitable motor, a base for the casing adapted to rest upon a horizontal surface, a bracket adapted to be attached to a suitable support and provided with sockets, flanged lugs on said base and casing adapted to removably engage said sockets, a fan spindle journaled on said casing, an extension connected therewith, a hanger supporting one end of said extension and adapted to be attached to a support, a second spindle journaled in said hanger and friction gearing connecting said spindles.

3. In a portable rotary fan, the combination of a casing containing a suitable motor, a base for the casing adapted to rest upon a horizontal surface, a bracket adapted to be attached to a suitable support and provided with sockets, flanged lugs on said base and casing adapted to removably engage said sockets, a fan spindle journaled on said casing, a hanger supporting one end of said spindle and adapted to be fixed to a support, an extension for the said spindle and

a fan head removably mounted on the spindle.

4. In a rotary fan, the combination of a casing containing a suitable motor, a base for the casing adapted to rest upon a horizontal surface, a bracket adapted to be attached to a suitable support and provided with sockets, flanged lugs on said base and casing adapted to removably engage said sockets, a fan spindle journaled on said casing, an extension for said spindle, a hanger supporting one end of said extension and adapted to be fixed to a support, a second spindle journaled in said hanger, friction gearing connecting the extension and said second spindle, a fan head removably mounted upon the second spindle, and means for regulating the speed of the fan spindles.

In testimony whereof I affix my signature in the presence of two witnesses.

LOUIS LEFEBVRE.

Witnesses:

CHAS. F. BASSETT,
M. A. MILORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."