(No Model.)

J. L. SAXE.

SUSPENSION FLY FAN.

No. 515,972. Patented Mar. 6, 1894.

Fig. 1

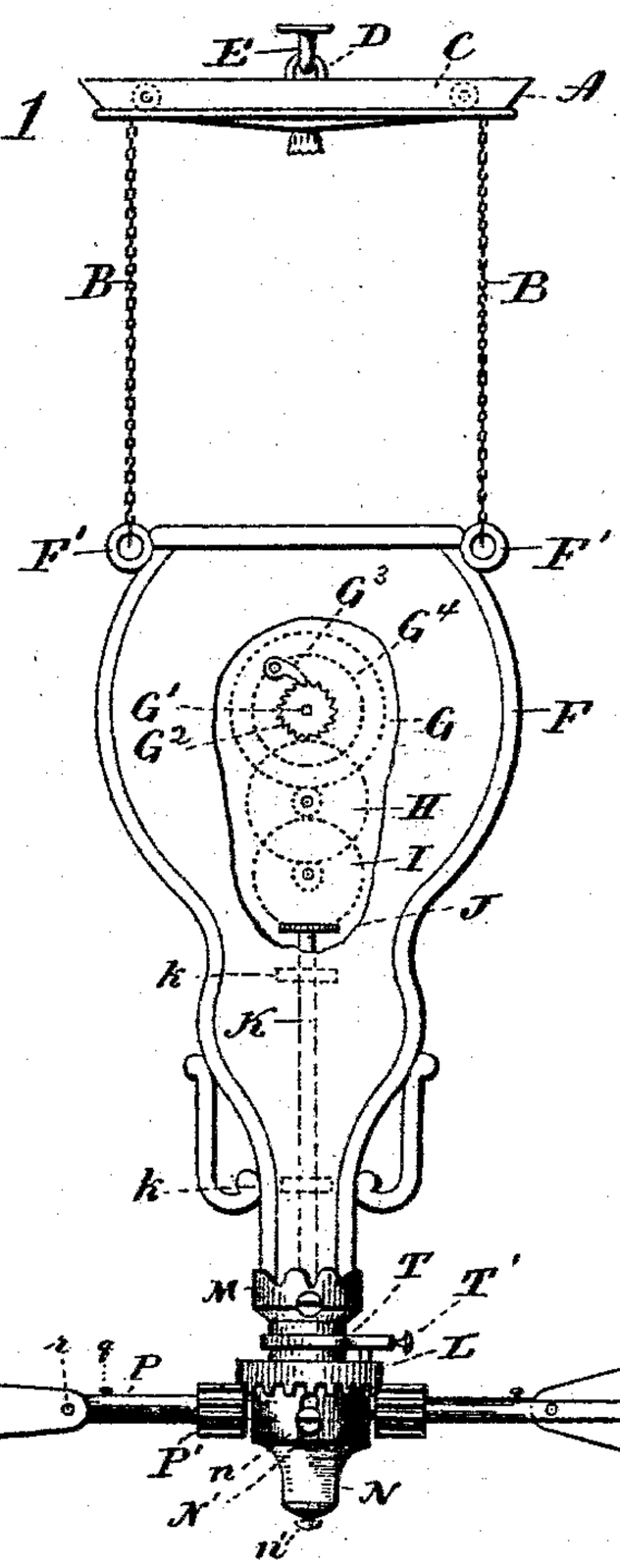


Fig. 2

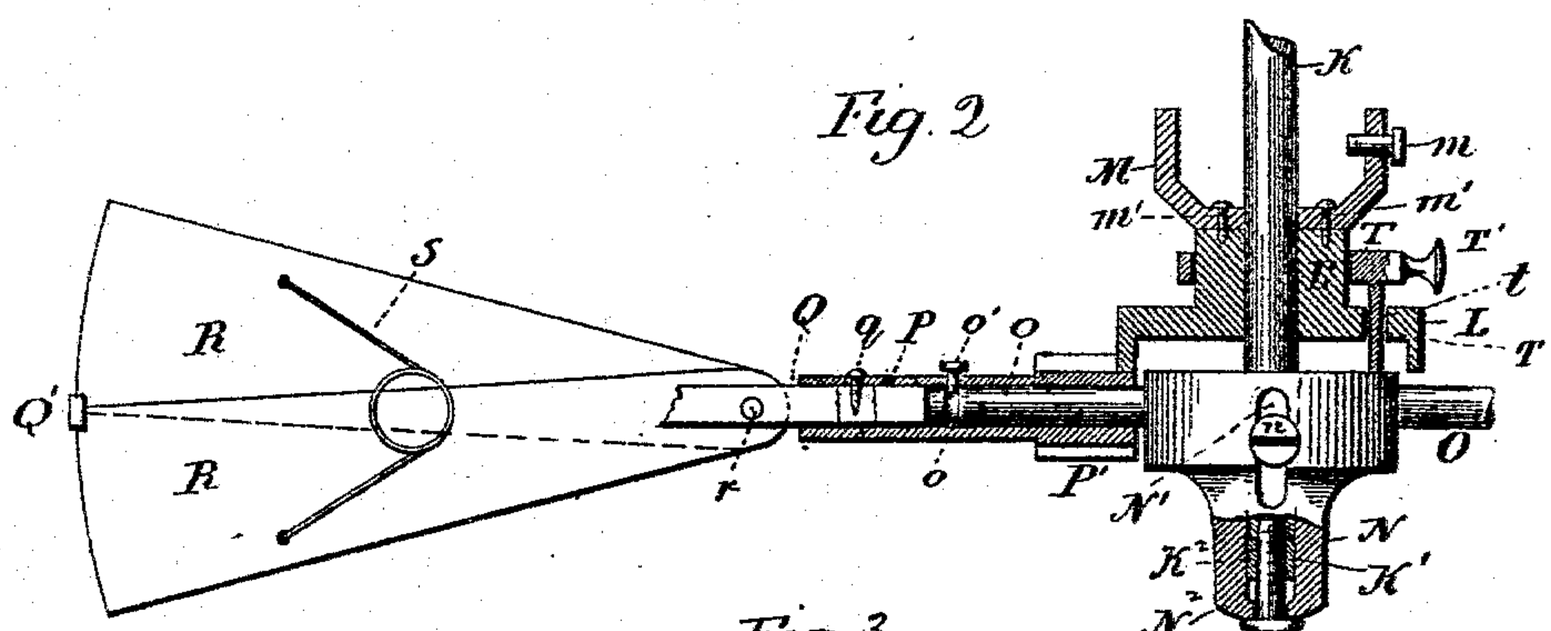
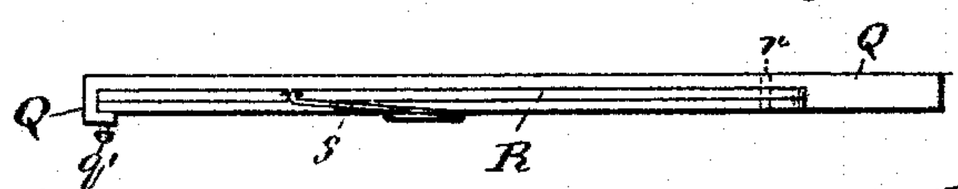


Fig. 3



Witnesses.
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JOHN L. SAXE, OF WATERBURY, CONNECTICUT.

SUSPENSION FLY-FAN.

SPECIFICATION forming part of Letters Patent No. 515,972, dated March 6, 1894.

Application filed February 6, 1893. Serial No. 461,168. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. SAXE, of Waterbury, in the county of New Haven and State of Connecticut, have invented new Improvements in Suspension Fly-Fans; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a suspension fly-fan constructed in accordance with my invention; Fig. 2, a broken view in vertical section of the lower end thereof, drawn on a larger scale; Fig. 3, a detached plan view of one of the sectional fans, together with its supporting-arm.

My invention relates to an improvement in suspension fly-fans, the object being to produce a simple, convenient and effective device, which may be raised and lowered in the same manner as a suspension lamp or chandelier.

With these ends in view, my invention consists in a suspension fly-fan having certain details of construction and combinations of parts as will be hereinafter described, and pointed out in the claims.

In carrying out my invention, I may employ any of the approved forms of suspension devices, such as are commonly used for the suspension of lamps and chandeliers. As herein shown, the device comprises a horizontal case A, and two chains B B, depending therefrom, and wound upon a horizontally arranged wheel C, located therein, and indicated by broken lines. A staple D, located in the top of the case, provides for hanging it from a hook E, in the ceiling of the apartment. It is thought that it is not necessary to further detail the construction of a suspension device, as such devices are so well known. A case F, suspended from the lower ends of the chains, is provided at its upper end with two eyes F′ F′, for that purpose. This case receives a train, which is indicated herein by wheels G, H, and I, the former being mounted upon a spring-arbor G′, squared at one end to receive a winding-key, and carrying the ratchet-wheel G^2, which is engaged by the usual spring-actuated pawl G^3. The spring G^4 which drives the train, is indicated by broken lines. I do not, however, limit myself to the use of the particular train shown, as any suitable train might be employed in its place, and if preferred, I may use a train driven by a weight, or other power instead of a spring.

The wheel I, meshes into a horizontally arranged pinion J, secured to the upper end of a vertical shaft K, mounted in bearings *k k*, and projecting at its lower end through the tapering lower end of the case. A crown-wheel L, arranged in an inverted position, is connected with the lower end of the case by means of a cap or collar M, fitted over the same, and secured in place by a set-screw *m*, the hub L′ of the said crown-wheel L, being secured to the cap by means of screws *m′*, or in any other approved manner. A circular head N, constructed with a vertically elongated slot N′, and with an opening N^2 which is located in its lower end, is secured to the projecting lower end of the shaft K, by means of a set-screw *n*, passing through the slot N′, and impinging against the side of the said shaft, and by a set-screw *n′*, which passes through the opening N^2, and enters the end of the shaft, which is thereto constructed with a threaded counter-bore K^2. The said head is provided with two oppositely projecting horizontal studs O O, having annular grooves *o*, formed in their outer ends. Sleeves P, slipped over the said studs are provided at their inner ends with pinions *p′*, which take into the teeth of the inverted crown-wheel L, whereby as the shaft K, and hence the head is rotated, the sleeve will be revolved, the said wheel being fixed in position. The sleeves are secured to the studs with capacity for rotation thereon, by means of set-screws *o′*, which enter the grooves *o*, before mentioned. The outer ends of the sleeves receive the supporting-arms Q, of the sectional fans, the said arms being secured within the outer ends of the sleeves by means of screws *q*, or in some other equivalent manner. The said arms Q, taper at their outer ends and are made light in construction.

As herein shown, each fan consists of two leaves R R, tapering in form, the leaves of

each fan being pivoted to the arms on the same center r, and connected together by means of a spring S which under normal conditions will fold the leaves together to the width of one. Under the action of centrifugal force, however, the tension of the springs is overcome and the leaves separate, as shown to the right of Fig. 1, and also in Fig. 2 of the drawings. The outer end of each of the arms is bent over to form a clamping finger Q′, carrying a set-screw q', by means of which the leaves may be held positively in their open, or in their closed, or in intermediate positions.

In order to provide for arresting the action of the fans without waiting for the train to run down, I furnish the device with a stop, which as herein shown, consists of a collar T, vertically movable on the hub L′ of the crown-wheel L, and having an operating handle T′, and a depending pin T^2, which passes through a vertical opening t, formed in the crown-wheel. Normally the said collar is maintained in an elevated position, but when it is desired to use the stop, it is pushed down, so that its pin T^2, will engage with one of the studs O, and arrest the revolution of the shaft. Or, the pin might be arranged to engage with a lug on the upper face of the head N, or some other stop might be devised.

By combining a fly-fan with a suspension device, it will be seen that the fan may be adjusted up and down just the same as a lamp, and therefore sustained in any position in which it is found convenient to use it. It will be noted also, that the fans have a two-fold movement, viz: rotation with the arms in a horizontal plane, and upon the arms in a vertical plane, whereby the air is doubly agitated. If it is desired, however, to operate the device so as to get less effect, that may be done by disengaging the pinions P′ P′ from the crown-wheel L. That is done by loosening the screw n, and turning the screw n' back, whereby the head N will follow the head of the screw n' down under the action of gravity, the described turning of the said screw being continued until the pinions have been cleared from the crown-wheel. The screw n, is now turned to again bind the head N to the shaft K, which when allowed to rotate, will revolve the arms and fans in a horizontal plane, but they will no longer rotate upon the arms. It will be observed that the fans are self governing, and that they will open and close according to the speed with which they are driven.

The crown-wheel and the pinions engaged thereby might be replaced by friction devices, though the said gearing is preferred. As herein shown, the device employs two fans, but obviously one or more could be used as desired.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein, as fairly fall within the spirit and scope of my invention. Thus, although I have described my improved fan and the mechanism for rotating and revolving the same in connection with a suspension device, I may choose to dispense with the same and support the said fan and mechanism in some other way. I am aware, however, that a vertically adjustable suspension fly-fan is old. I am also aware that it is old to impart two-fold rotary movement *i. e.* collective and individual, to the fans of a suspension fly-fan, and I do not therefore claim that construction broadly.

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

1. In a fly-fan, the combination with a driving-shaft and means for rotating the same, of a head attached to the said shaft, a radial stud carried by the said head, a sleeve mounted on the said stud and rotatable thereupon, a fan attached to the outer end of the sleeve, and means for rotating the said sleeve on the stud to impart longitudinal rotary movement to the fan in addition to the rotary movement thereof with the said shaft, substantially as set forth.

2. In a fly-fan, the combination with a driving shaft and means for rotating the same, of a head attached to the said shaft and rotating therewith but longitudinally adjustable thereon, a radial stud carried by the said head, a fixed crown-wheel having an opening through which the said shaft passes and toward and away from which the said head is movable on the shaft, a sleeve mounted on the said stud, a pinion attached to the inner end of the sleeve and arranged to mesh into the said crown-wheel or escape the same according to the adjustment of the head, and a fan attached to the said sleeve, substantially as set forth and whereby the said head may be adjusted to cause the fan to have a single or twofold rotary movement, substantially as set forth.

3. In a fly-fan, the combination with a driving-shaft and means for rotating the same, of a fixed crown gear-wheel arranged concentrically with the shaft which projects through the same, a head attached to the projecting end of the shaft, and rotating therewith, and provided with a radial stud, forming a journal a sleeve mounted and having bearing on the said stud, a pinion located at the inner end of the sleeve and arranged to mesh into the said crown gear-wheel, and a fan attached to the outer end of the sleeve, substantially as set forth, and whereby the fan is rotated by the shaft and also on its longitudinal axis.

4. In a fly-fan, the combination with a supporting-arm, of a fan consisting of folding leaves pivoted to the said arm and connected by a spring which normally holds them in folded condition yields to centrifugal force,

and permits them to spread apart, and means for rotating and revolving said arm, substantially as described.

5. In a fly-fan, the combination with a supporting-arm constructed at its outer end with a clamping finger furnished with a set-screw, of a self-governing fan, consisting of leaves pivoted at their inner ends to the said arm, and extending at their outer ends into the said clamping arm, and a spring connecting the said leaves, and yielding under centrifugal force; and means for rotating and revolving the said arm and hence the fan, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN L. SAXE.

Witnesses:
P. E. HOLLEY,
MARGRET TIERNEY.