(No Model.)

R. F. HUNT.

FAN OPERATING DEVICE.

No. 479,425. Patented July 26, 1892.

Fig. 2.

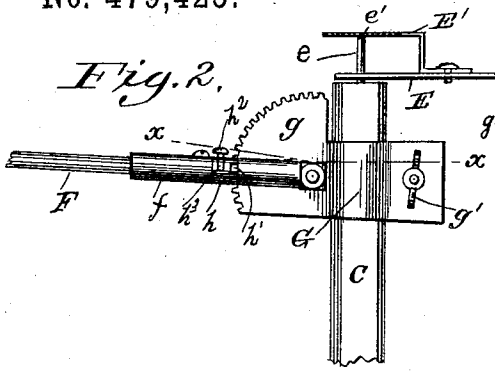


Fig. 1.

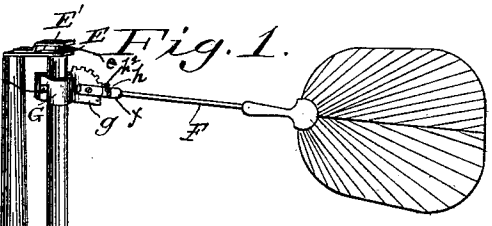
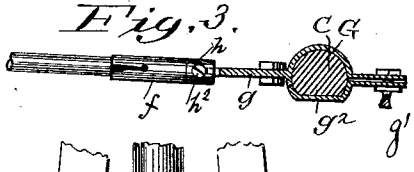


Fig. 3.



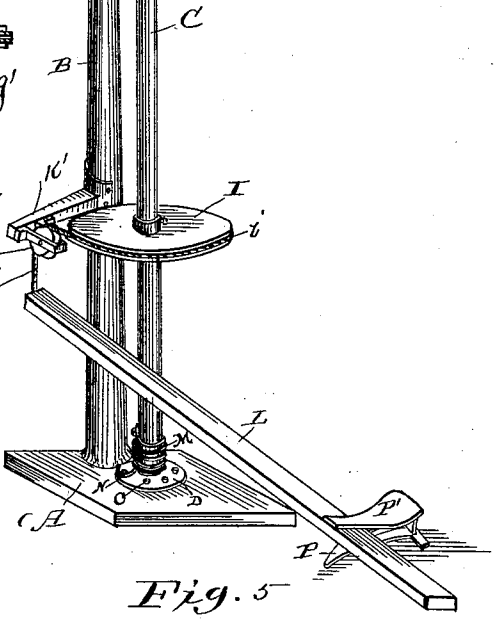


Fig. 4.

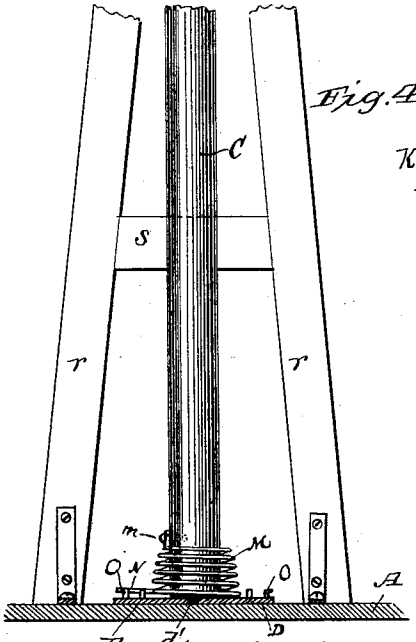


Fig. 5.

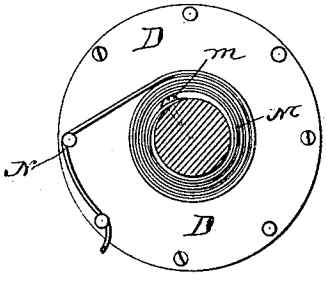
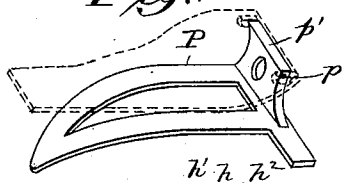


Fig. 7.



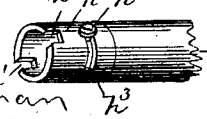


Fig. 6.

Witnesses

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ROBERT FINLEY HUNT, OF WASHINGTON, DISTRICT OF COLUMBIA.

FAN-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 479,425, dated July 26, 1892.

Application filed August 15, 1889. Serial No. 320,901. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FINLEY HUNT, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Fan-Operating Devices; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to that class of fan-operating devices in which the fan is mounted on a vertical shaft or standard and adapted to be moved in a horizontal plane, motion being derived through the medium of a foot-treadle, the object of the invention being to provide a portable fan of the class mentioned, whereby it may be located beside a table, sick-bed, or at any desired point, and which shall be of such simple design as to be of small initial cost, easily operated by any one without appreciable exertion, and noiseless when in operation, and in which the fan can be adjusted vertically to any desired angle, while horizontally the center of the sweep of the fan can, at the pleasure of the operator and without changing his position with reference to it, be fixed radially at any point within an arc of two hundred and seventy degrees or three-quarters of a circle, and reciprocally the position of the operator with reference to the fan can be fixed at any point within the same arc, thus making the fan universal as to its action and the direction of the currents of air that it sets in motion.

To these ends the invention consists, broadly stated, in a portable fan having a base and post or upright rigidly mounted thereon, with a fan-shaft supported in vertical position and oscillating in bearings thereon at top and bottom and a treadle connected through suitable gearing with said shaft for imparting motion thereto. Further, the invention consists in certain novel details of construction and combinations and arrangements of parts to be hereinafter described, and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of a fan and operating mechanism constructed in accordance with my invention. Fig. 2 is a side elevation of the upper end of the fan-shaft and adjustable fan-support. Fig. 3 is a section on the line $x\ x$, Fig. 2. Fig. 4 is a section of the base and lower bearing for the fan-shaft, showing a modified form of upright. Fig. 5 is a section looking down on the base and spring and showing the manner of adjusting the latter. Fig. 6 is a detail of the fan-arm. Fig. 7 is a detail of the treadle attachment.

Similar letters of reference in the several figures indicate the same parts.

The base A of the apparatus may be formed of any suitable material of sufficient width to afford the necessary lateral support for the upright and fan-shaft to prevent the same from being easily turned over, but at the same time so light as to permit of the convenient handling or transportation of the apparatus from place to place, and on this base is rigidly mounted the upright or post B, preferably high enough to reach above the top of the fan-shaft C. This fan-shaft C is journaled in bearings at top and bottom of the upright B, the bearings being preferably formed at the bottom by a plate D, having a central recess or bearing, in which is stepped the bearing d' on the end of the fan-shaft, and at the top by an arm E, secured rigidly on the upright, with a bearing through which the journal e on the upper end of the shaft passes and a pivoted bracket E′, having a step-bearing formed therein at e' for the end of the journal e. With these bearings the fan-shaft may be easily removed by turning the bracket to one side, lifting the shaft out of the lower bearing, and then drawing it down out of the upper bearing in arm E.

The arm F, carrying the fan at the outer end, which fan may be of any preferred or convenient style or size, is simply an elongation of the ordinary fan-handle, which is slipped into the socket f, pivotally connected to the bracket G, which is in turn adjustably mounted on the fan-shaft in a manner to be presently described. The socket-arm f is pivoted on the toothed segment g and swung vertically to adjust the fan to any desired angle, being held in adjusted position by the catch formed by the collar h on the arm and adapted to engage the teeth on the segment, small notches h' being formed on diametrically-opposite sides, through which the teeth

pass to permit an up-and-down adjustment when said notches are brought into a vertical line. The rotation of the collar is limited by the screw h^2, working in the slot h^3. The bracket preferably surrounds the shaft and is split at one side and provided with a thumb-screw g', adapted to draw the edges together and clamp the shaft, one side of which is preferably flattened, as at g^2, to prevent its accidental movement within the bracket when it is reciprocated.

At a convenient point on the lower part of the shaft is secured a grooved pulley or wheel I, around which passes a cord or belt i, running over a pulley K on the end of an arm K′, secured firmly on the upright, the end of the belt being secured thereto, and to the opposite end of the belt is connected one end of a treadle L, which, resting at the far end on the floor, is adapted to be depressed by the operator's foot to rotate the shaft and fan in one direction, as will be readily understood. In order now to return the shaft and fan to first position, a spring of neat and compact form is employed, having the convolutions or coils M surrounding the lower end of the shaft and one end attached thereto at m and the opposite end adjustably secured to the base, preferably by being bent into the form of a catch N, adapted to engage with any one of the series of radial lugs or projections O, formed on the base, or preferably, as shown, directly on the plate D. The catch N passes outside of the first lug, as shown in Fig. 5, and has the end sprung back inside of the second one in order to prevent the lower convolutions of the coil from being drawn in against the shaft, producing a grating sound and wearing the shaft, which for the sake of lightness and cheapness is preferably of soft wood.

Any preferred form of upright may of course be employed, two forms being shown in the drawings, Figs. 1 and 4, the former being a single turned post and the latter a framework formed by two uprights r r, united by cross-pieces S, while many other forms will at once suggest themselves to persons engaged in perfecting this class of devices.

The apparatus is always held by the spring in such position as that a pressure on the treadle will operate the fan at once, swinging the same around in one direction, the spring immediately returning it to normal position when the pressure on the treadle is relieved.

The foot-treadle described is a lever of the third order and requires the movement of the whole leg to cause a proper operation, and while it is obvious that other forms of treadles may be employed this is preferably used because of its adaptabilities and simplicity, permitting it to be shifted around the fan-shaft to any point and extended away from the same, whereby the operator may be removed some distance from the fan, and in connection with such treadle I provide an attachment which will enable the treadle to be operated in a manner to bring in the ankle movement, relieving the operator of the additional labor of moving the whole leg. This attachment consists of the base P, curved around to one side, as shown, to extend under the treadle L and having at the rear end the bearing p in a standard p', in which the top piece or treadle P′ is pivoted. The forward end of this treadle P rests on the treadle L, and the operator, placing his foot on P′, is enabled to depress the said treadle L by a simple movement of the foot from the ankle, the fulcrum being almost under the heel.

It is desirable in mechanism of this kind that absolutely no noise be made by their operation, so as to adapt them for use in the sick-room as in other places where quietness is desirable, and it will be noted that throughout the structure herein described this desideratum has been secured, there being but three points where friction occurs or where moving parts come in frictional contact with each other—*i. e.*, the top and bottom bearings for the fan-shaft and the journals of the pulley K—the convolutions of the spring being separated and the strength of the same made adjustable, as heretofore described.

The sanitary value of this invention, particularly in a sick-room, is also evident, since it sets in motion all the air in an ordinary-sized room, thereby improving the ventilation and freshening the air in it.

I am aware that vertical fan-shafts have been journaled in the center of a table and operated by a treadle; but such devices do not possess the elements of portability, cheapness, and adaptability essential to success.

It is obvious that many changes in details adapting the invention for use in different positions and for particular purposes may be made without departing from the spirit of my invention.

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

1. In a portable fan-operating mechanism, the combination, with the base and upright rigidly mounted thereon, the plate having the bearing therein on the base, and the projections or lugs thereon, of the fan-shaft journaled in said bearing, the coil-spring surrounding said shaft and having the catch engaging said projections, and the pulleys, cord, and treadle, substantially as and for the purpose specified.

2. In a fan-operating mechanism, the combination, with the base, upright, and fan-shaft journaled at the bottom on the base and having the journal at the upper end, of the bearing for the top of the same, formed by the arm on the upright having the bearing thereon for the journal, and the movable bracket for preventing the upward movement of the shaft and journal, substantially as described.

3. In a portable fan-operating mechanism, the combination, with the vertical fan-shaft and operating-treadle, as described, of the

bracket on the fan-shaft, having the toothed segment thereon, the arm pivoted in said segment and having the sleeve thereon engaging the teeth thereof with the notches to permit the vertical adjustment of the arm, substantially as described.

4. In a portable fan-operating mechanism, the combination, with the vertical fan-shaft and operating-treadle, as described, of the adjustable bracket split on one side, with the thumb-screw for drawing the sides together and having the toothed segment thereon, the fan-arm pivoted on said segment and having the sleeve thereon engaging the teeth with the notches to permit the vertical adjustment of the arm, substantially as described.

5. An attachment for portable fan-operating mechanism, consisting of the forwardly-extending base, with the bearing at one end, and the top or treadle pivoted in said bearings and adapted to rest on the operating-treadle, whereby the necessity for fastening the base down is dispensed with, substantially as described.

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Witnesses:
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