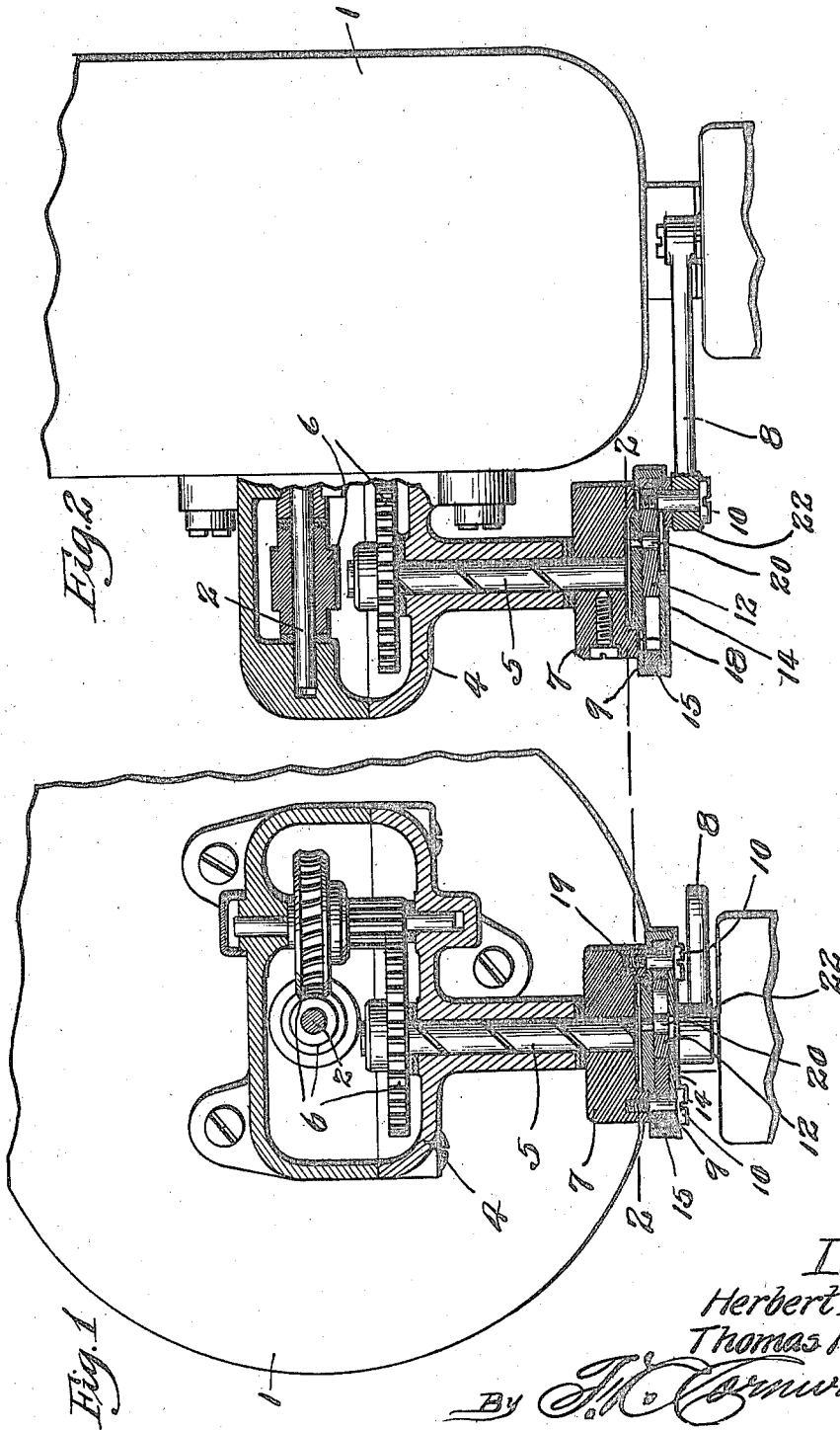


H. I. FINCH & T. M. MESTON.
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 APPLICATION FILED SEPT. 10, 1917.

1,256,121.

Patented Feb. 12, 1918.
 2 SHEETS—SHEET 1.

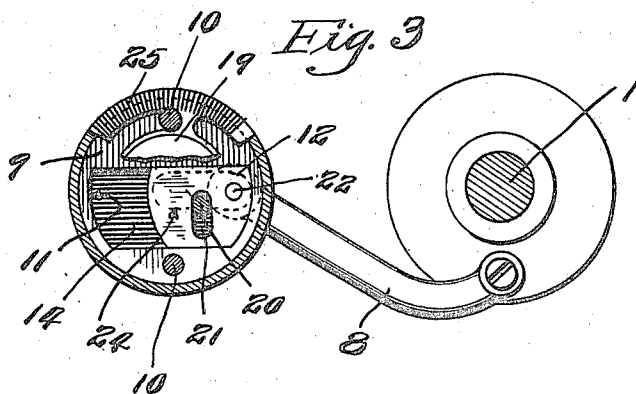
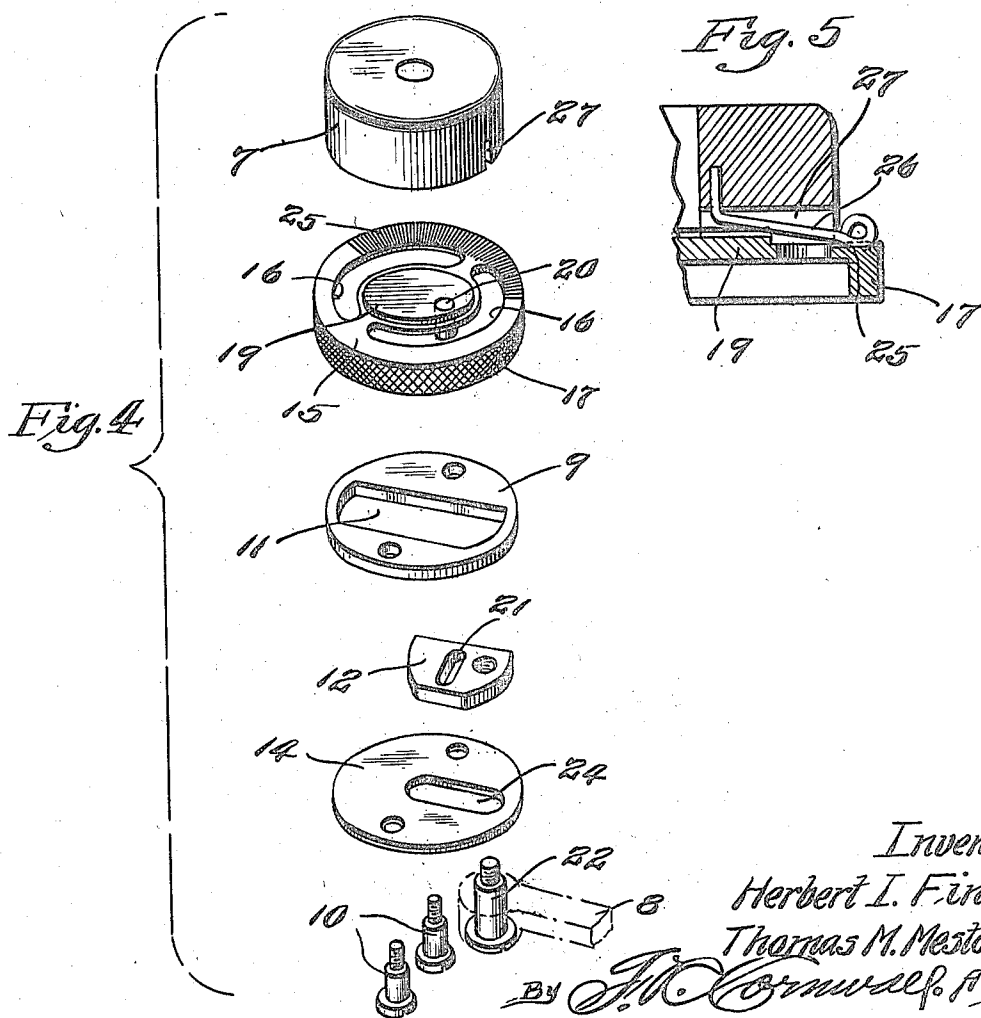


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 By *J. M. Cornwall* Atty.

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UNITED STATES PATENT OFFICE.

HERBERT I. FINCH AND THOMAS M. MESTON, OF ST. LOUIS, MISSOURI, ASSIGNORS TO
THE EMERSON ELECTRIC MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A
CORPORATION OF MISSOURI.

ADJUSTING DEVICE FOR OSCILLATING FANS.

1,256,121.

Specification of Letters Patent.

Patented Feb. 12, 1918.

Application filed September 10, 1917. Serial No. 190,485.

To all whom it may concern:

Be it known that we, HERBERT I. FINCH and THOMAS M. MESTON, citizens of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Adjusting Devices for Oscillating Fans, of which the following is a full, clear, and exact description, 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, forming part of this specification.

This invention relates to certain improvements in the adjustable oscillating mechanism of a type employed in certain familiar kinds of ventilating fans. It pertains specifically to certain improvements in the means whereby the extent or scope of the fan's oscillatory movement may be selectively varied between its full movement and zero.

As is well known in the use of such devices, it is desirable frequently to change the scope of the fan's oscillatory movement to accommodate it to different situations, as well as to operate the fan without the oscillatory movement. As is well known in the art, various arrangements have been provided for such purpose, many of which are limited to a few definite predetermined adjustments.

It is the purpose of our invention not only to provide an arrangement whereby the selective variation of adjustment is rendered practically infinite, so that any adjustment of the fan's oscillatory stroke between maximum and zero may be made, but also to provide a device of greatly simplified construction, one in which the necessary adjustments may be made very easily, both while the fan is operating or stationary, one in which the selected adjustment, though easily accomplished when desired, may not be changed by the ordinary operation of the device, thus insuring its permanency; and to provide a device in which the various operating parts are entirely housed and protected and entirely free from casual disorders. Various other objects of our invention will be obvious or pointed out hereinafter, reference being made to the accompanying drawings, in which—

Figure 1 is a detail in the nature of a

vertical section through our improved oscillating mechanism, the view showing the rear elevation of the fan motor casing;

Fig. 2 is a detail showing the oscillating mechanism in sectional elevation, the view showing the fan motor casing in side elevation;

Fig. 3 is a detail in the nature of a horizontal section taken substantially on line 3—3 of Figs. 1 and 2, parts of the device being broken away;

The group constituting Fig. 4 being in the nature of a perspective of the stroke-adjusting device, its several parts being shown in disjointed relationship, and

Fig. 5 being a detail in the nature of a sectional elevation through a portion of the stroke-adjusting device.

Referring in detail to the drawings by means of the reference numerals, let it be understood that the numeral 1 designates the motor casing of an electrically operated fan, said casing constituting a supporting frame for the various operating parts, and being itself mounted for rotary movement upon a suitable supporting base. Any conventional form of electric motor may be carried in the frame or casing 1, its operation being rendered effective through a rotor shaft 2. To one side of its axis of rotation, the frame 1 supports a housing in which is operably mounted a shaft 5. Suitable reduction gearing 6 is interposed between the rotor shaft 2 and shaft 5, whereby the latter is actuated from the former at a reduced speed. The shaft 5 carries a rotary member 7, which moves with the shaft. Pivotally connected to the rotary member 7 by adjustable means about to be described, is a thrust link 8, the other extremity of which is pivotally connected to the stationary base member upon which the frame 1 is supported. It will be obvious that so long as the point of connection of the link 8 to the rotary member 7 is eccentric of the latter, rotation of said member 7 will exercise thrust and pull moments, through the connecting link 8, against the stationary mounting to which the inner extremity of said link is connected.

The means whereby the operative force is transmitted from the shaft 5 to the link 8, includes in addition to the rotary member 7,

the guiding member 9 in the form of a plate which is fixedly secured to the member 7 by screws 10. The guiding member 9 is formed with the transverse slot 11 in which is slidably fitted the adjustable block 12. The size and form of the block 12 is such as to permit its movement longitudinally in the slot 11 across the axis of the rotary member 7. The block 12 is retained in the slot 11 by the cover plate 14 and by the adjusting member 15 which are arranged to cooperate, respectively, with the opposite sides of the plate 9 and block 12. The cover plate 14 is fixedly secured to the rotary member 7 by means of the same screws 10 which secure the plate 9 in place. The adjusting member 15, however, is rotatable relative to the rotary member 7, the desired extent of rotation being afforded by the slots 16 which accommodate the shanks of the screws 10. The adjusting member 15 has a peripheral wall 17 of sufficient depth to house the fixed plates 9 and 14, and portions of its upper surface are adapted to afford support or bearing for an annular bearing portion 18 of the rotary member 7. The adjusting member 15 is maintained in coaxial alignment with the rotary member 7 by the engagement of a journal portion 19 with the inner circumferential face of the bearing portion 18. Carried eccentrically on the adjusting member 15 is a pin 20, the projecting portion of which has operative engagement with the block 12 by means of a slot 21 in the latter. Also seated in the block 12 is a pintle screw 22 which forms the operative mounting of the outer extremity of the thrust link 8. Said screw 22, in its passage through the cover plate 14, is accommodated by the slot 24 in the latter. Mounted on the rotary member 7, and having cooperation with a surface of the adjusting member 15, which may be knurled or roughened, as at 25, to increase friction, is a detent member 26. It is here shown as a small spring occupying a slot 27 in the member 7, and with one end seated in said member and the other end cooperating with the adjusting member 15 under the normal tendency of the spring.

The arrangement of the guiding plate 9, the block 12, and the pintle screw 22 is such that the latter is movable on a radius of the rotary member 7 from a position on the axis thereof. Such radial movement of block 12 and pintle screw 22 is accomplished by manual adjustment of the adjusting member 15. Rotation of said member 15 about the axis of the rotary member 7 while the latter is stationary, will move block 12 longitudinally of the slot 11, by virtue of the engagement of pin 20 in slot 21. The extent of radial movement of block 12 is dependent simply upon the extent of rotary movement of adjusting member 15, and as the degrees

to which the adjusting member 15 may be rotated, between its limits of movement, are infinite, it is obvious that the block 12 may be moved to any position intermediate its innermost and outermost positions.

The operation of the device is obvious from the foregoing description, it being understood that the degree of eccentricity of the pintle screw 22 relative to the axis of rotation of the member 7 is the predetermining factor in fixing the extent of oscillation which will be imparted to the frame 1 by the thrust and pull moments exerted against the stationary mounting through the thrust link 8. The annular wall 17 of the adjusting member 15 offers a convenient and continuous manipulative member which may be grasped by the hand in any position of the device to effect the desired adjustment. The device affords a very slightly arrangement, as all operating parts are housed, and there are no projecting levers, adjusting screws, or the like, to become fouled with oil and dust or offer opportunity for articles to become caught when the device is operating. Moreover, the operating parts themselves are securely housed where they will not become clogged by accumulations of dust and grease. This device, in addition to providing for an infinite variety of adjustments, insures positive fixedness of the adjustable parts and permits of adjustment with the greatest ease. The engagement of the block 12 by the pin 20, which is carried on the member 15 having only rotary movement, and the bearing engagement of the block 12 at its opposite sides against the sides of the slot 11, provide a resistance which will tend to prevent movement of the block 12 by any manipulation of the pintle screw 22, as the block 12 cannot be operated to impart rotary movement to the adjusting member 15.

While we have disclosed and above described what we now believe to be the best form in which our invention may be embodied, we are aware that it is not limited in scope to that particular embodiment, but that it may be incorporated in other forms. It is our purpose that the appended claims comprehend all forms in which the invention may be embodied.

What we claim is:

1. In a fan, an oscillating mechanism including a rotary member, means for rotating the same, a block carried by the rotary member and movable across the axis of rotation thereof, a thrust link having pivotal connection with said block, a stationary pivotal connection for the other extremity of said link, and an adjusting member supported on the rotary member and adjustable relative thereto about the axis thereof, there being operative connection between said adjusting member and said block whereby the latter may be moved toward and from the axis of

the rotary member by adjustment of said adjusting member.

2. In a fan, an oscillating mechanism including a rotary member, means for rotating the same, a block carried by the rotary member and movable relative thereto, a thrust link having pivotal connection with said block, a stationary pivotal connection for the other extremity of said link, an adjusting member carried by the rotary member and adjustable relative to said block and said rotary member about the axis of the latter, and an operative connection between said adjusting member and said block whereby the point of connection of the link on the block may be moved into and out of the rotary axis of the rotary member.

3. In a fan, an oscillating mechanism comprising the combination of a rotary member, means for driving the same, an adjusting member supported by said rotary member and rotatable concentrically relative thereto, a block carried by the rotary member and movable transversely thereof, an operative connection between the adjusting member and said block whereby the latter may be moved relative to the rotary member by rotation of the former, and a thrust link having pivotal connection at one end with said block and at the other end with a stationary mounting.

4. In a fan, an oscillating mechanism including the combination of a rotary member, means for rotating the same, an adjusting member adjustable about the axis of the rotary member, a block adjustable spacially relative to the axis of the rotary member, an operative connection between the adjusting member and the block whereby the latter may be moved by adjustment of the former, and a thrust link having pivotal connection

at one extremity with the block and at the other extremity with a fixed mounting.

5. In a fan, an oscillating mechanism including the combination of a rotary member, means for rotating the same, a block carried by the rotary member and spacially adjustable relative to the axis of rotation thereof, an adjusting member carried by the rotary member and movable concentrically relative to the rotary member, means cooperating with the adjusting member to restrain it against movement relative to the rotary member, an operative connection between the adjusting member and the block whereby the latter may be moved by adjustment of the former, and a thrust link having operative connection at one extremity with the block and at the other extremity with a fixed mounting.

6. A crank disk for the purpose described comprising a main supporting member, a circumferential rotative member mounted to move therearound and cooperating therewith, and a pintle block articulated with said parts whereby it is adjustable toward and from the axis of said main rotative member.

7. A crank disk comprising a rotary main supporting member, in combination with a member movable circumferentially relative thereto, a pintle block adjustable toward and from the axis of rotation, and means whereby said pintle block is substantially held against movement in its different adjusted positions.

In testimony whereof we hereunto affix our signatures, this 7th day of September, 1917.

HERBERT I. FINCH.
THOMAS M. MESTON.