

No. 776,026.

PATENTED NOV. 29, 1904.

G. E. JACOBSON.
MOTOR FAN.

APPLICATION FILED SEPT. 20, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

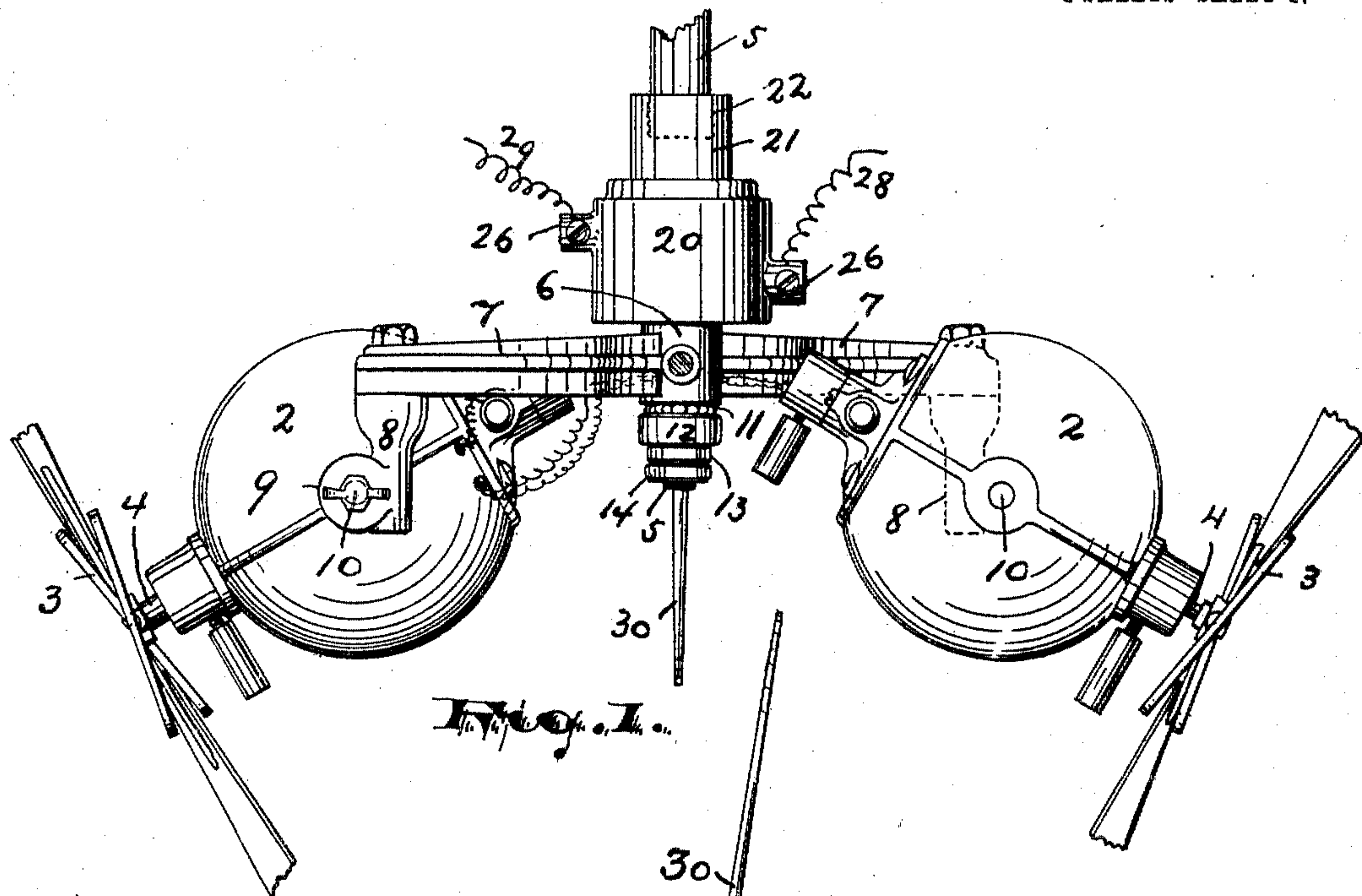


Fig. 1.

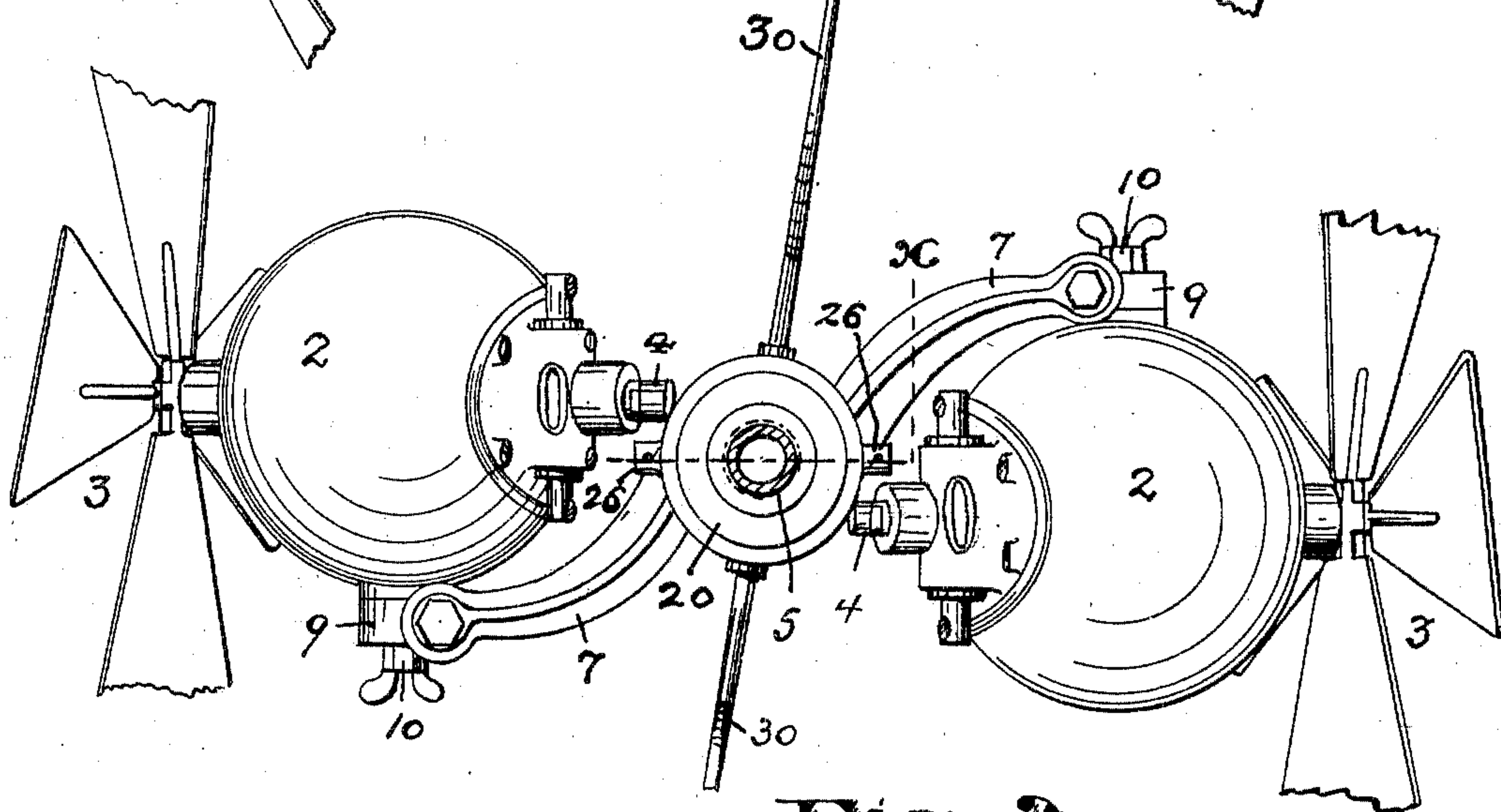


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

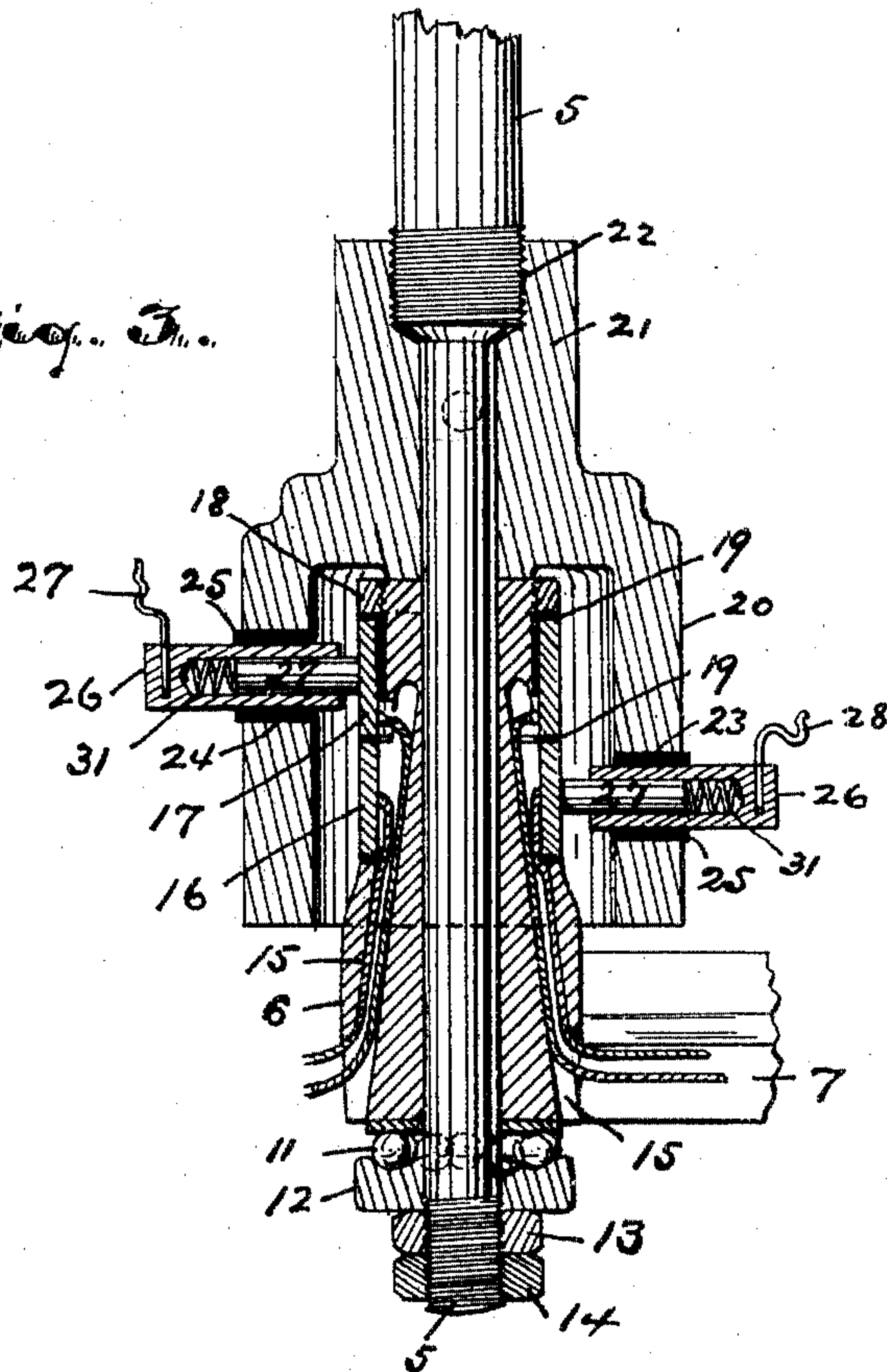
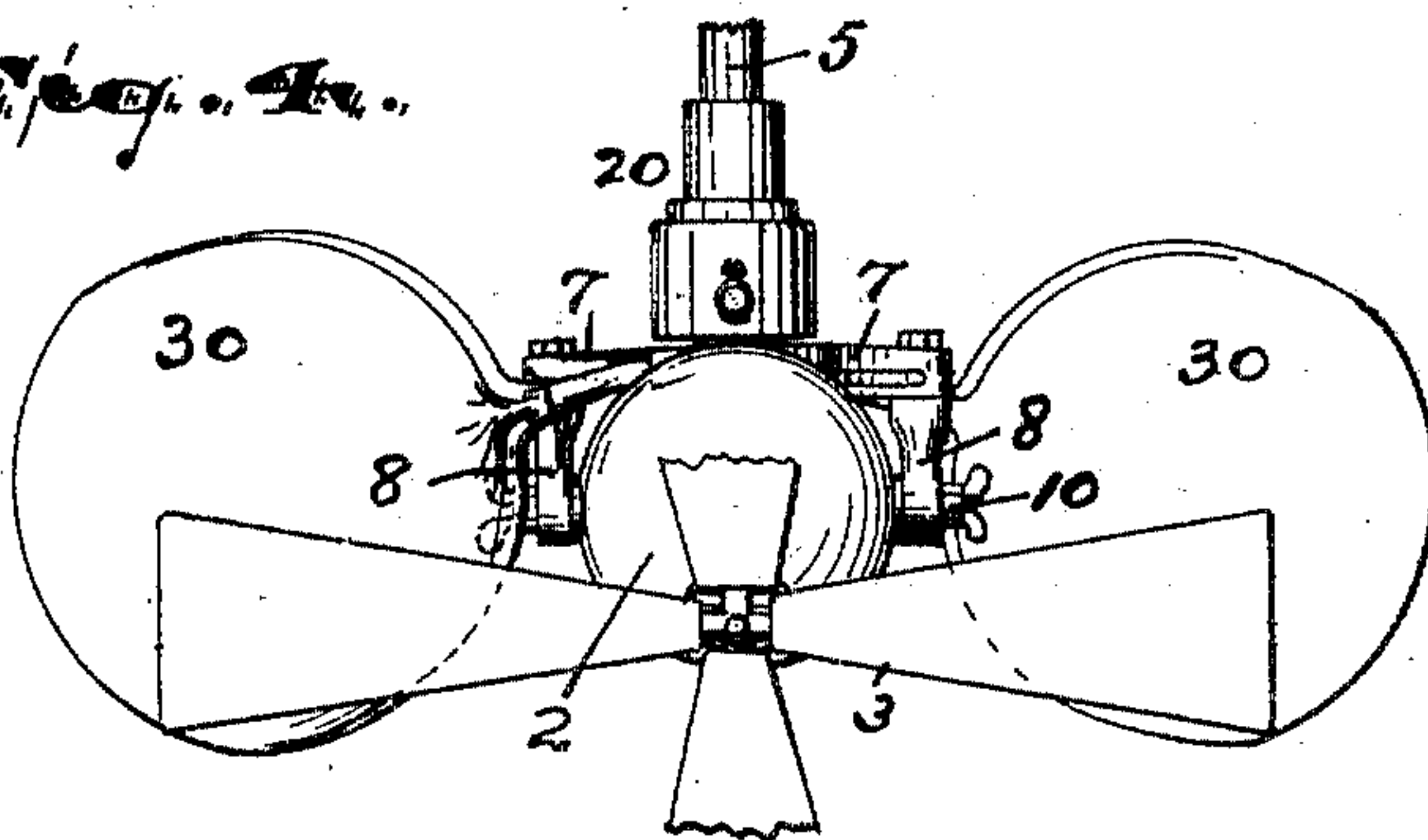


Fig. 4.



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UNITED STATES PATENT OFFICE.

GUSTAV E. JACOBSON, OF NEWARK, NEW JERSEY, ASSIGNOR TO ESSEX ELECTRICAL COMPANY, A CORPORATION OF NEW JERSEY.

MOTOR-FAN.

SPECIFICATION forming part of Letters Patent No. 776,026, dated November 29, 1904.

Application filed September 20, 1902. Serial No. 124,129. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV E. JACOBSON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Motor-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 numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to increase the space or volume of air agitated by fans—such as are commonly employed in stores, offices, halls, and the like—and thus to utilize to a full extent the capacity of the fan, to enable the volume or space of air agitated to be varied by adjustment of the fan, and to secure other advantages and results, some of which may be hereinafter referred to.

The invention consists in the improved compound motor-fan herein described and in the arrangements and combinations of the parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side view of my improved fan. Fig. 2 is a plan of the same. Fig. 3 is a vertical central section as on line *x*, Fig. 2; and Fig. 4 is a side elevation from a point of view at right angles to that from which Fig. 1 is seen.

In said drawings, 2 2 indicate two electric motors of any suitable type or construction, and 3 3 are simple or single fans of any ordinary kind mounted on the shafts 4 4 of the motors. Said motors are each adapted to be pivoted upon a transverse axial line at right angles to its said shaft 4, as is common, so that the fan can be tipped or swung into different directions.

In my improved construction I prefer to employ a main supporting-shaft 5, adapted to

depend vertically from the ceiling or any other suitable support, and carrying near its lower end a rotary hub 6, with arms 7 7 projecting horizontally from its sides. It is to the ends of said arms 7 7 that the two motors 2 2 above mentioned are pivoted, preferably by means of studs 8 8, projecting downward one from the end of each arm and each having at one side of its lower end an ear 9, adapted to receive the pivotal bolt 10 of the motor 2. The lower end of the hub 6 is adapted to be seated upon balls 11, held in a retaining cup or ring 12, slipped upon the main shaft 5, and in turn held by nut 13, screwed upon the threaded lower end of the shaft and firmly secured by second lock-nut 14. The arms 7 7, which are preferably two in number, are thus adapted to rotate upon ball-bearings, and each carries at its end a motor-fan, as described.

The depending studs 8 at the ends of the arms 7 7 preferably are rotatably adjustable, and in carrying out the primary idea of my invention said studs are set in such position that the axes of the fans do not lie in the same vertical plane, but are directed one to each opposite side of the vertical axial line of the main shaft 5 between the fans, as clearly shown in Fig. 2. The result of this disposition is that as the fans rotate on their shafts they cause the arms 7 7 to revolve horizontally, so that the fans are thus carried around in a horizontal circle at the same time they rotate on their shafts. This movement takes place automatically without any expenditure of additional power, and results, it will be seen, in the breeze from the fans being directed toward all sides and throughout a larger area instead of in only one direction, as when the fan-motors are fixed. In addition to the results above described each motor is mounted upon its pivotal pin or bolt 10 at an axial line passing through the center of gravity of the motor, and thus each motor can not only be turned to direct its fan-shaft into any position from vertical to horizontal, but is also stable in such position. By means of the two adjustments, both horizontal and vertical, the

wind or breeze from the fan may thus be directed throughout the space or volume of a cone whose apex is in the main supporting-shaft 5 and whose base is the floor of the room. By this means an agitation of the air in the room to practically any desired extent may be secured and the corresponding cooling effect attained.

As has been stated, I have shown electric motors employed in my invention, and preferably the wires from each motor run along the adjacent supporting-arm 7 and upward through a passage 15 in the hub 6, one to each of two rings or sleeves 16 17, mounted upon said hub in insulated relation thereto and to each other. A collar 18, screwed upon the upper end of the hub 6, holds said rings or sleeves and their insulation 19 in fixed position. The said hub 6 for its portion above the arms 7 7 is practically inclosed by a cylindrical case 20, which is open at its lower end and at its upper end 21 is perforated to receive the shaft 5, preferably screwing thereon, as at 22. At the lower part of this said case 20 perforations 23 24 are made in its opposite side and on a level, respectively, with the rings or sleeves 16 17, before described. Each of the said perforations is lined with insulation 25, and through the same extends a tubular socket 26, from the inner open end of which projects a brush 27 of any common type, which is held outward from its socket against the ring or sleeve 16 (or 17) by a spiral spring 31 in the bottom of such socket. Contact may thus be established between the revolving motors and the circuit-wires 28 29, led away from the brushes in the perforations 23 24 of the case 20. Obviously any other means of connecting up the electric motors might be used without departing from the spirit and scope of my invention, and, furthermore, means for rotating said revolving fans other than the electric motors described might be used if desired.

To prevent undue acceleration of the speed of the horizontally-rotating arms 7 7 in my device, I prefer to employ as brakes fans 30, which may be of common palm-leaf or the like and which project oppositely from the hub 6 in a line transverse to the line connecting the two fans 3 3 and have their blades disposed vertically. Each brake-fan consists of a blade having a centrally-disposed stem, the said stem being inserted into the hub 6 between the arms 7 and in substantially the same plane therewith. A position of the fans is thus secured above the motors, and consequently in operation the currents from the

motor-fans are not interrupted or disturbed by those from the brake-fans.

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

1. In a compound motor-fan, a supporting-rod, a hub pivoted on said rod and having radial arms each carrying a laterally-projecting substantially horizontal pin, and fan-motors mounted one upon each of said pins in such a manner that the pin lies in a line passing through the center of gravity of the motor, each motor being adjustable on its pin, whereby each motor is stable in any position in the vertical plane in which it is adjustable.

2. In a compound motor-fan, a supporting-rod, a hub rotatably mounted on said rod and having radial arms, downwardly-projecting rotary studs on said arms, each having a laterally-projecting substantially horizontal pin, and fan-motors mounted one upon each of said pins in such a manner that the pin lies in a line passing through the center of gravity of the motor, each motor being adjustable on its pin, whereby each motor is stable in any position in the vertical plane in which it is adjustable.

3. In a compound motor-fan, a supporting-rod having near its end a cap or casing, a hub rotatable upon said rod and adjacent to said cap or casing and having radial arms, substantially horizontal pins carried by said arms and projecting laterally therefrom, and fan-motors mounted one upon each of said pins in such a manner that the pin lies in a line passing through the center of gravity of the motor, each motor being adjustable on its pin, and the rear ends of the motors being thus adjacent to the lower end of the said cap or casing to receive circuit-wires therefrom.

4. In a compound motor-fan, the combination of a supporting-rod, a rotary hub on said supporting-rod having radial arms, downwardly-projecting studs upon said arms, fan-motors mounted on said studs each at a point below the said arms, and brake-fans each comprising a blade and a centrally-disposed stem, said stem being inserted in the said hub between the motor-carrying arms, in substantially the same plane therewith, whereby the brake-fans are above the fan-motors.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of August, 1902.

GUSTAV E. JACOBSON.

Witnesses:

CHARLES H. PELL,
C. B. PITNEY.