No. 619,058. Patented Feb. 7, 1899.

C. H. VON HOHENSTEIN.

FAN MOTOR.

(Application filed Sept. 27, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

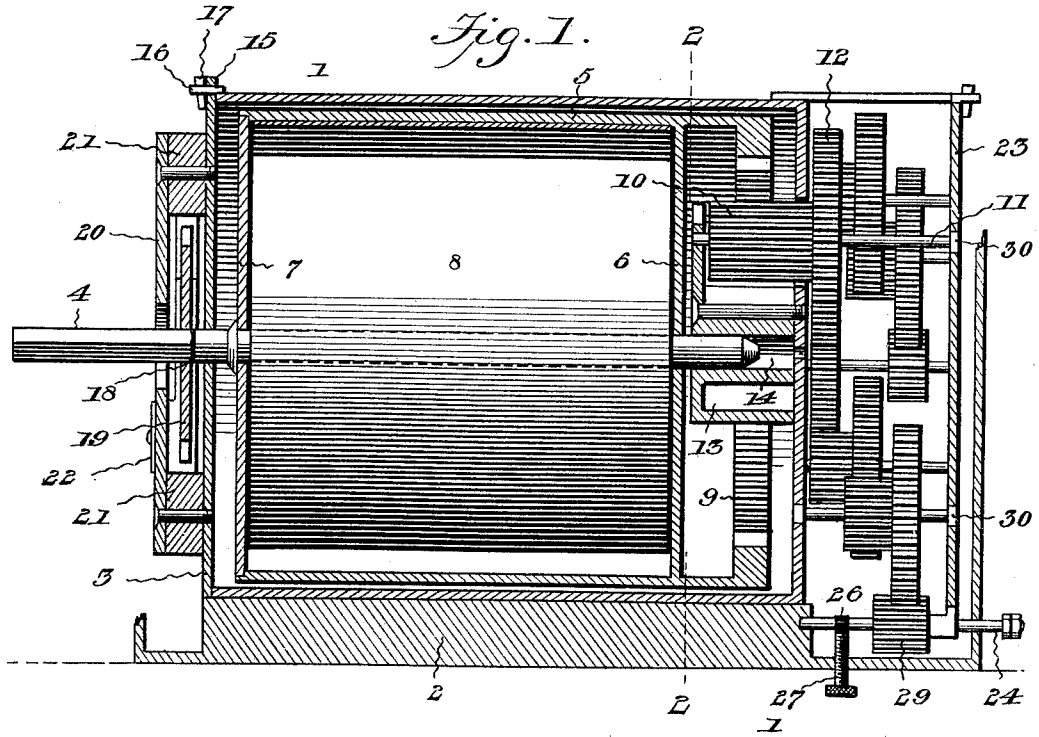


Fig. 3.

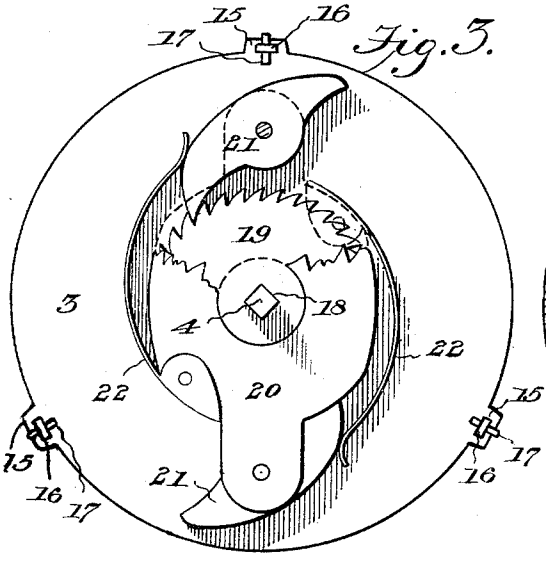
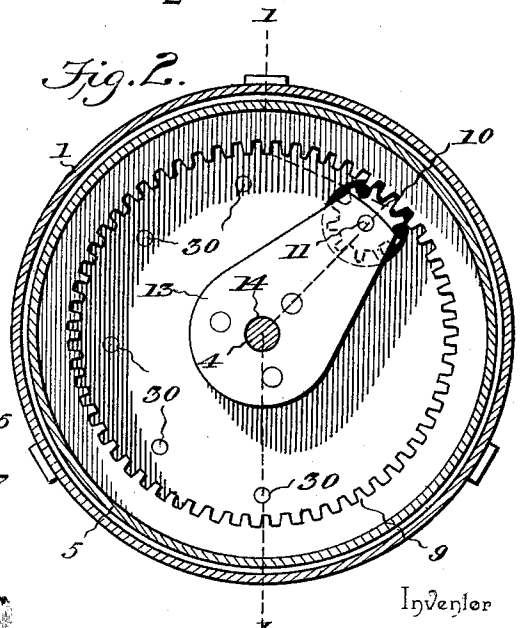


Fig. 2.



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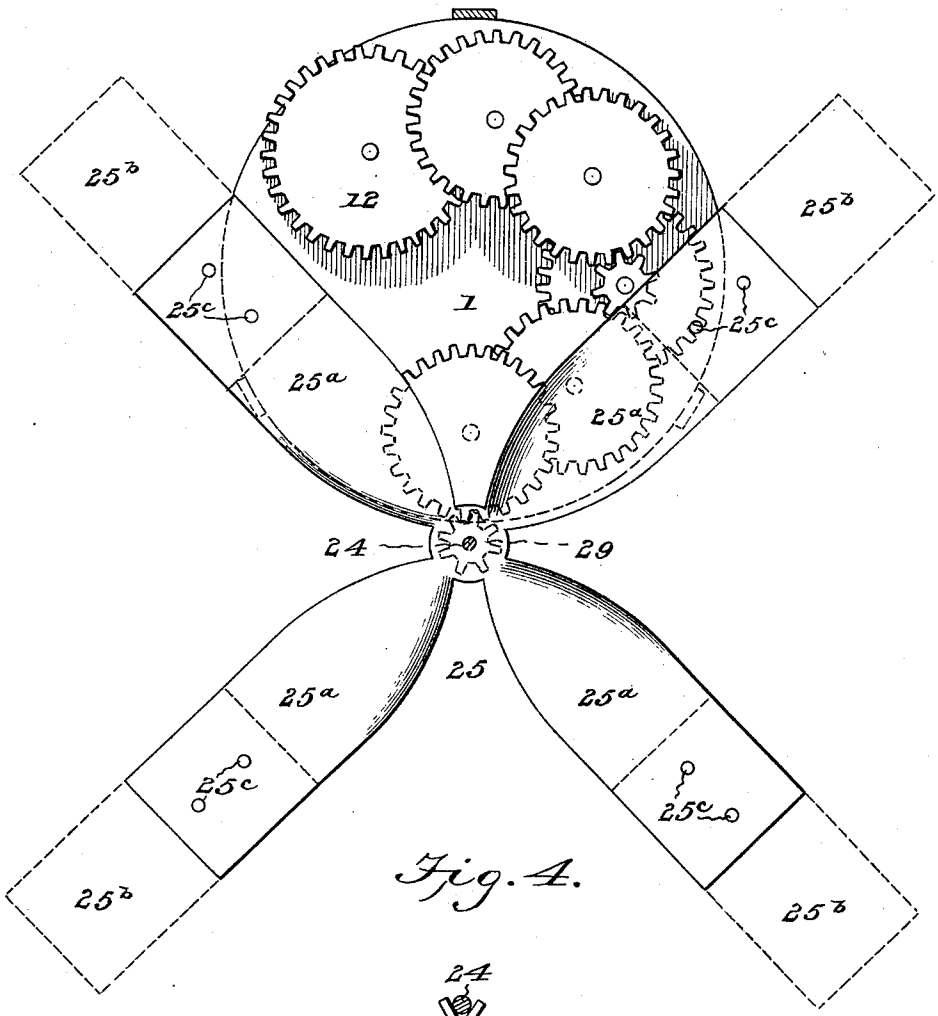


Fig. 4.

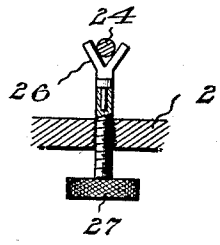


Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES H. VON HOHENSTEIN, OF DALLAS, TEXAS.

FAN-MOTOR.

SPECIFICATION forming part of Letters Patent No. 619,058, dated February 7, 1899.

Application filed September 27, 1897. Serial No. 653,177. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. VON HOHENSTEIN, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented a new and useful Motor, of which the following is a specification.

My invention relates to motors adapted for driving fans, and particularly to a simple, compact, and durable structure suitable for manufacture in portable form for operating a fan designed for general ventilating purposes, the parts being so combined as to be readily accessible for cleansing, repairing, and analogous operations.

Further objects and advantages of this invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a central longitudinal section of a motor constructed in accordance with my invention, the plane of the section being indicated upon the line 1 1 of Fig. 2. Fig. 2 is a vertical transverse section on the line 2 2 of Fig. 1. Fig. 3 is a rear view, partly broken away. Fig. 4 is a front view to show the gearing for communicating motion from the drive-wheel to the driven spindle. Fig. 5 is a detail view in section of the spindle-brake.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The exterior casing 1 is mounted upon a suitable pedestal 2, which, however, may be varied in structure to suit the position and point of support of the motor, said casing being open at its rear end and fitted with a removable cap 3, through which the spring-arbor 4 projects for winding purposes. The spring-arbor is mounted axially in a spring-drum or interior casing 5, which is concentrically mounted in the exterior casing and is provided with front and rear heads 6 and 7, between which the driving-spring 8 is arranged, one end of said spring being attached to the drum or shell of the interior casing 5 and the other end being fixed to the spring-arbor. The spring-drum projects forwardly beyond the wall 6 and terminates in an internal operating-gear 9, which, however, is housed within the exterior casing and meshes with a drive-pinion 10, of which the spindle 11 carries a drive-gear 12. The spindle of the drive-pinion 10 is mounted in a bracket 13, carried by the front head of the exterior casing, said bracket being provided in alinement with the axis of the spring-drum with a socket 14 for the reception of the front projecting extremity of the spring-arbor 4. Hence in assembling the parts as thus far described the spring-drum is inserted into the casing through the open rear end thereof until the internal gear 9 meshes with the pinion 10, after which the head 3 of the casing is applied, with its perforated ears 15 in engagement with the perforated lugs 16 on the rear end of the casing, and is secured in place by means of pins 17 or equivalent fastening devices.

The rear end of the spring-arbor beyond the rear head of the spring-drum is of cross-sectionally angular construction, as square, and extends through a square socket 18 in a ratchet-wheel 19, which is mounted in a housing 20 on the head 3, the rear wall of said housing being formed by a yoke, in which the hub of the ratchet-wheel is mounted. Opposite dogs 21, also arranged in said housing, engage with the ratchet-wheel to prevent backward rotation thereof, and thus hold the actuating-spring 8 at the desired tension when the spring-arbor has been turned by suitable means, such as a key or crank, to wind the same. The squared projecting portion of the spring-arbor forms a key-seat to facilitate said winding operation, and the dogs are provided with actuating-springs 22, terminally secured to the yoke 20.

The casing of the motor supports a frame 23, in which is mounted the driven spindle 24, adapted to carry a fan 25, and arranged in operative engagement with the spindle is the shoe 26 of a brake device, said shoe being carried by an adjustable stem 27, consisting of a screw or its equivalent threaded in a suitable opening in the frame. Said brake-shoe is swiveled upon the stem to allow rotation of the stem to adjust the shoe toward and from the spindle without affecting the engagement of the arms of the shoe with the spindle, as shown in detail in Fig. 5.

A train of multiplying-gears is employed to communicate motion from the drive-gear 12

to the spindle 24, said spindle being fitted with a pinion 29, and those gears contiguous to the spindle and which are rotated at a high speed during the operation of the motor are preferably mounted upon jewels, as indicated at 30 in the drawings. Obviously the number of gears included in the frame may be varied to suit the desired speed of the spindle, and if a fan is employed the blades may be made of any desired length to suit the proposed use of the fan. In order to adapt a single fan for use under varying conditions, I preferably provide the main blades 25^a with detachable extensions 25^b, removably secured to the main blades by means of bolts 25^c.

As above indicated, the interior of the casing is accessible through its rear end by the removal of the rear head 3, and in the same way the interior of the spring-drum is accessible to provide for removing the actuating-spring by means of the removable head 7 of said drum. The ratchet-wheel forming one member of the ratchet mechanism is permanently mounted upon the head 3 of the casing, but is constructed to removably fit the key-seat formed on the extension of the spring-arbor, and hence when the keys 17 are displaced the casing-head may be removed with the ratchet mechanism to allow the axial removal of the spring-drum. The socket-bearing 14, in which the front extended extremity of the arbor 4 is mounted, is fixed to the closed front end of the cylinder and projects rearwardly within the space surrounded by the internal gear which is carried by the forward extension of the cylindrical wall of the drum, and an extension of the bracket 13, in which the socket-bearing 14 is formed, forms an arm which supports the rear end of the spindle of the drive-pinion 10. It is obvious that the disengagement of the internal gear 9 from the drive-pinion 10 (the latter being axially elongated) is accomplished by the above-mentioned axial movement of the drum either in removing the latter from the casing or replacing the same, and the seating of the front extremity of the arbor 4 in the socket-bearing 14 insures the proper arrangement of the internal gear with relation to the drive-pinion. Furthermore, the gear-supporting frame 23 may be closed in to form a housing to protect the gearing; but I have deemed it unnecessary to illustrate such a housing in the drawings.

An important advantage of the motor embodying my invention resides in the fact that being compact in structure it may be arranged in either of a variety of positions, as attached to the ceiling or to a wall-bracket, or it may be placed upon a table or counter, and inasmuch as the power by which it is driven is contained within itself a motor constructed as described may be moved from place to place, as required, without reference to a source of power.

As the fan is an independent subject of invention it is not claimed in this application.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A motor having a stationary cylindrical casing, provided at one end with a removable head and at the opposite end with a central socket-bearing and a contiguous permanently-mounted inclosed drive-pinion, a terminally-closed cylindrical spring-drum rotatably mounted within the casing, and provided at the end contiguous to said socket-bearing with an extension of its cylindrical wall forming an internal gear which is concentric with the socket-bearing and meshes with the pinion, a spring-arbor rotatably mounted in the drum and projecting terminally beyond the heads of the latter to fit respectively in said socket-bearing and an alined bearing in the removable head at the opposite end of the casing, ratchet mechanism carried by the removable head of the casing and connected with the contiguous portion of the spring-arbor, a spring inclosed within the drum and having its extremities connected respectively with the drum and the arbor, and gearing for communicating motion from the drive-pinion to a driven spindle, substantially as specified.

2. A motor having a stationary cylindrical casing, provided at one end with a removable head and at the opposite closed end with an inwardly-projecting bracket recessed to form a central socket-bearing and extended laterally at its inner end to form an arm, an axially-elongated drive-pinion mounted within the casing contiguous to said bracket with one extremity of its spindle mounted in a bearing in said bracket-arm, a terminally-closed cylindrical spring-drum rotatably mounted within the casing, and provided at the end contiguous to said bracket with an extension of its cylindrical wall forming an internal gear concentric with the socket-bearing and meshing with said drive-pinion, a spring inclosed within the drum, and a spring-arbor rotatably mounted in the drum and extended terminally beyond the heads of the drum to fit in said socket-bearing and an alined bearing in the removable head of the casing, the extremity which is fitted in the socket-bearing terminating in the plane of the internal gear, ratchet mechanism mounted upon the removable head of the casing and detachably engaged with the contiguous extremity of the spring-arbor, and gearing for communicating motion from said drive-pinion to a driven spindle, substantially as specified.

3. A motor having a stationary cylindrical casing, provided at one end with a removable head and at the opposite end with a permanently-mounted inclosed drive-pinion and a central socket-bearing, a terminally-closed

cylindrical spring-drum removably mounted within the casing and provided at the end contiguous to said pinion with an extension of its cylindrical wall forming an internal gear to mesh with the pinion, a spring inclosed within the drum and having a rotatable arbor projecting terminally beyond the heads of the drum and fitting in said socket-bearing, and an alined bearing in the removable head in the opposite end of the casing, and also being extended beyond said removable head of the casing to form a cross-sectionally angular key-seat, ratchet mechanism permanently mounted upon and carried by the removable head of the casing and having an angular opening to removably fit said key-seat of the arbor and prevent backward rotation thereof, and gearing for communicating motion from said drive-pinion to a driven spindle, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES H. VON HOHENSTEIN.

Witnesses:
JNO. P. EVANS,
J. H. TRUESDALE.