No. 808,610. PATENTED DEC. 26, 1905.

H. LOEWNER.

FAN.

APPLICATION FILED OCT. 2, 1903.

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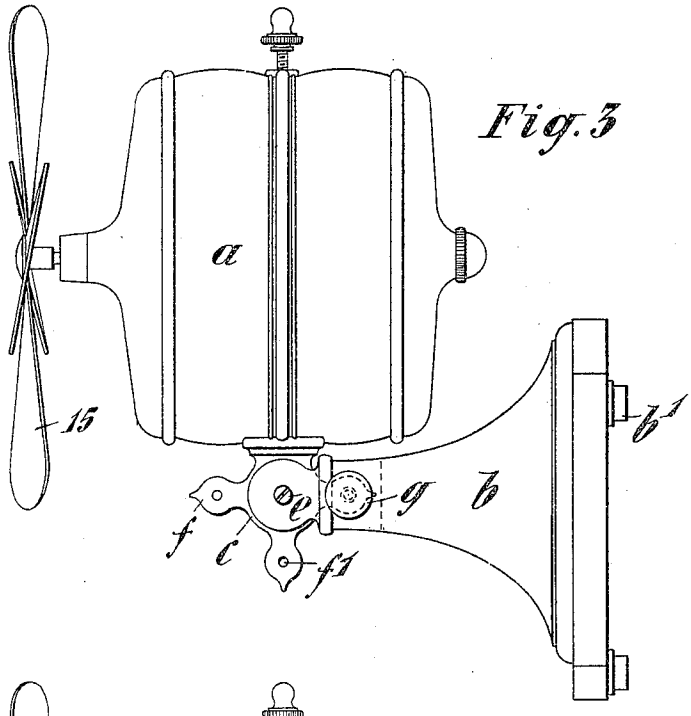


Fig. 3

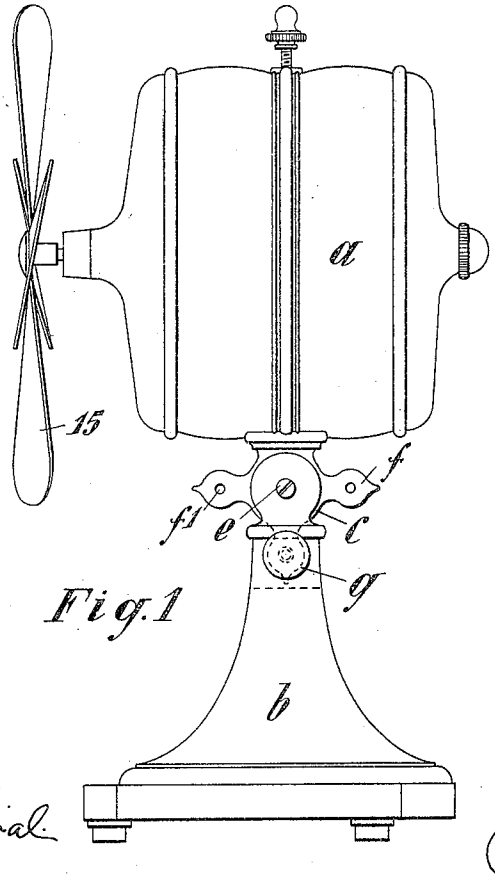


Fig. 1

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4 SHEETS—SHEET 2.

Fig. 2

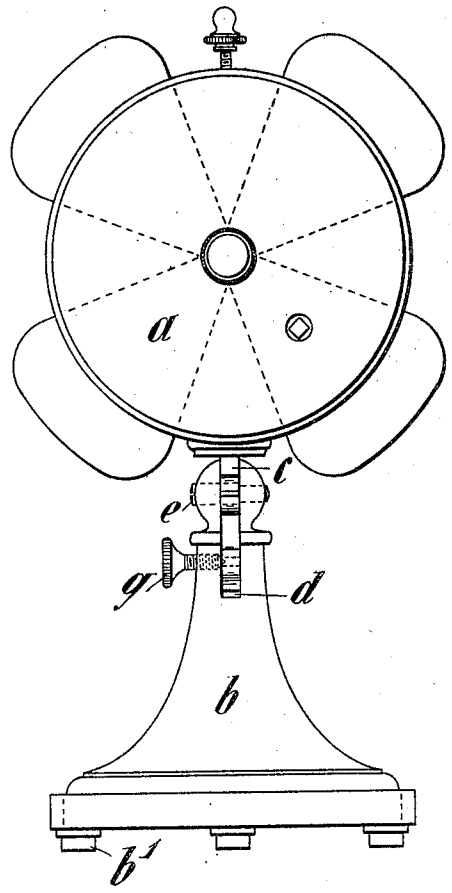
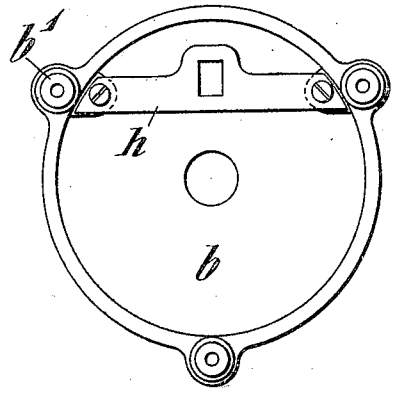


Fig. 4



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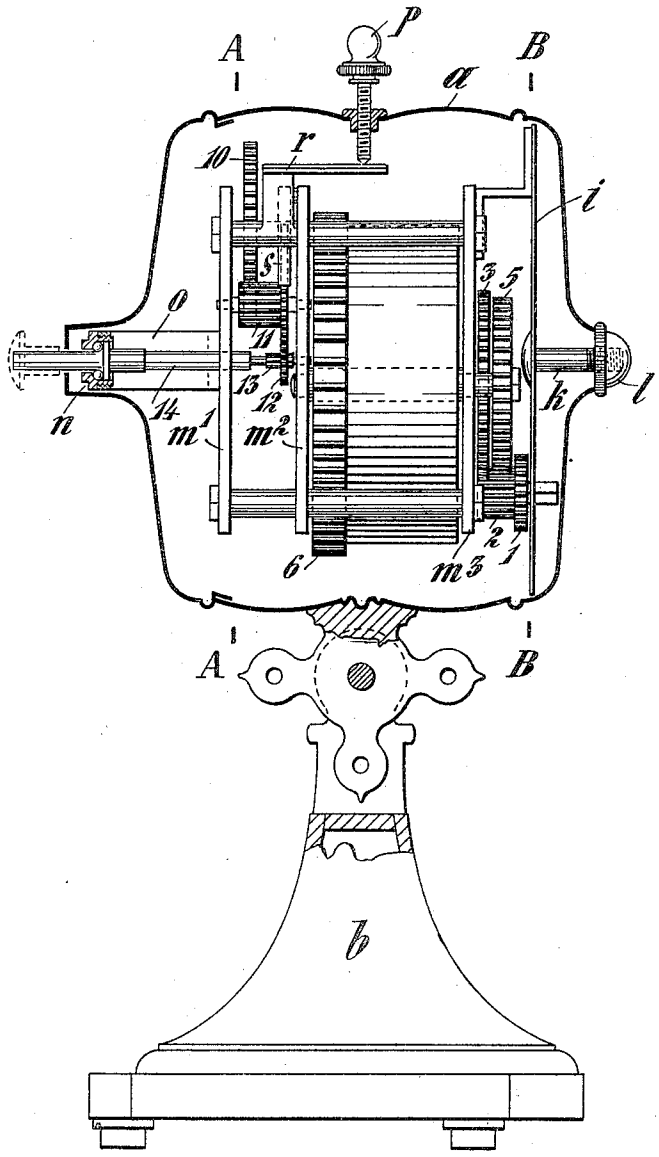
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4 SHEETS—SHEET 3.

Fig. 5



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4 SHEETS—SHEET 4.

Fig. 6

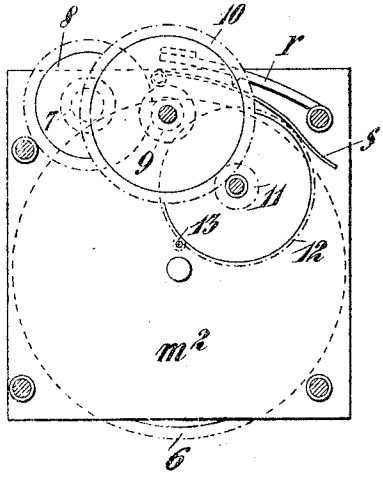


Fig. 7

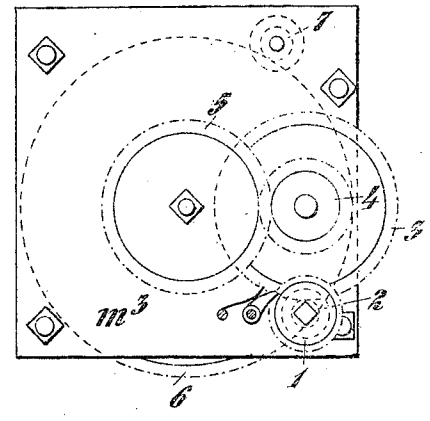
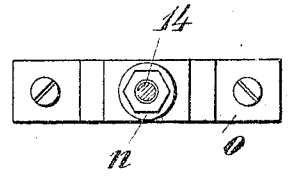


Fig. 8



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UNITED STATES PATENT OFFICE.

HANS LOEWNER, OF BERLIN, GERMANY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO OTTO GUSTAV ADOLF LITTMANN, OF CHARLOTTENBURG, NEAR BERLIN, GERMANY.

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No. 808,610. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed October 2, 1903. Serial No. 175,496.

To all whom it may concern:

Be it known that I, HANS LOEWNER, a subject of the King of Prussia, German Emperor, residing at Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in or Relating to 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.

This invention relates to fans.

In a fan constructed according to this invention the fan-wheel is driven by driving mechanism, such as clockwork, contained in a cylindrical casing. This casing is connected to a foot or stand in such a manner as to allow of the latter being shifted relatively to the fan-casing, so as to allow the fan to be used either in an upright or in a suspended position, according to requirement. The motion of the driving-wheel (spring-barrel or weight-drum) is transmitted to the shaft of the fan-wheel by means of gear wheels or pinions instead of by the worm hitherto usually employed, and the shaft of the fan-wheel runs in a ball-bearing, whereby a light drive and a correspondingly uniform and noiseless working are obtained. The casing itself may be furnished with any suitable ornamentation, and it may also be provided with edges, borders, corners, or the like without materially altering its cylindrical form.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 is a rear elevation, of a fan constructed according to this invention with its stand or support shown arranged in an upright position. Fig. 3 is a side elevation of the fan with its stand or support shown arranged in a suspended position. Fig. 4 is an under side view of the stand. Fig. 5 is a vertical longitudinal section of the apparatus with the exception of the fan-wheel. Fig. 6 is a cross-section on the line A A of Fig. 5, showing the driving mechanism in front elevation. Fig. 7 is a cross-section on the line B B of Fig. 5, showing the driving mechanism in rear elevation. Fig. 8 is a front elevation of the ball-bearing.

All the parts of the driving mechanism of the fan are contained in the cylindrical or approximately cylindrical casing *a*, Figs. 1, 2, 3, and 5, which is connected to the foot or stand *b* in an adjustable manner—namely, the casing *a* is provided with a flat part *c*, which is capable of rotating in a slot *d* in the foot *b*, and is pivoted on a pin *e*, screwed into the latter. This flat pivoting part *c* is formed with a suitable number (three in the present case) of arms or branches *f*, having holes *f'*, and in the foot *b* is a set-screw *g*, which is adapted to screw in one or other of the aforesaid holes *f'*, and thus clamp fast one or other of the arms *f*. By this means the foot of the fan may be fixed in the upright position, Fig. 1, or in a suspended position, as shown in Fig. 3. A transverse piece *h*, Fig. 4, provided in the foot, serves for the suspension of the fan-foot, while suitable rubber studs *b'* on the foot *b* have the object of enabling the fan to be either stood upon a horizontal surface or hung up against a wall.

The driving mechanism of the fan is fixed in the casing *a*, for example, by means of the plate *i*, screw *k*, and nut *l*, Fig. 5. This driving mechanism comprises in the present case the plates m' m^2 m^3, in which the spring-barrel or weight-barrel and the main driving-wheel 6 are mounted. Winding-up wheels 2, 3, 4, and 5, constructed and arranged in the usual manner, and also the ratchet-wheel 1, Fig. 7, are employed for the purpose of winding up this barrel. Motion is transmitted from the main driving-wheel 6 by means of the pinions and connecting-wheels 7, 8, 9, 10, 11, and 12 to the fan-wheel pinion 13 on the shaft 14 of the fan-wheel 15, Fig. 6. This shaft 14 revolves with one of its end journals in the plate m^2 and with its front portion in a ball-bearing *n*, Figs. 5 and 8, which is screwed into a cross-piece *o* of the plate m'. When the clockwork is wound up, the rotation of wheel 13 can be regulated or entirely stopped by the following arrangement: Between plates m' and m^2 a lever *r* is arranged on a pin connecting these two plates, so that it can turn. Said lever, Figs. 5 and 6, can be moved downward by means of hand-screw *p*, having a projection or the like thereon, Fig. 6. Said lever *r* lies against spring *s*, which is fastened on plate m^2 and slides with its end on toothed wheel 12. By screwing down screw *p* lever *s* can be pressed against wheel 12, so that the rotation of the wheel 15 is regulated, while when screw *p* is screwed upward spring *s* moves lever *r* also upward.

Having now particularly described and ascertained the nature of the said invention and

in what manner the same is to be performed, I declare that what I claim is—

In combination with a fan and its spindle having a pinion rigidly mounted thereon, a clockwork for operating the fan comprising a front plate having a hole therein, said hole being larger in diameter than the diameter of the pinion, a middle plate having a bearing for the spindle, a back plate, a driving-drum mounted between the middle and back plates, toothed transmission-gearing mounted between the front and middle plates, a cross-piece on the front plate, a removable ball-bearing in said cross-piece, said fan-spindle passing through the ball-bearing and through the hole in the front plate and having its inner end engaging in the bearing in the middle plate so that the pinion on said spindle will engage with the before-mentioned transmission-gear whereby when the ball-bearing is removed the fan-spindle with its pinion can be removed from the clockwork.

In witness whereof I have hereunto signed my name, this 14th day of September, 1903, in the presence of two subscribing witnesses.

HANS LOEWNER.

Witnesses:

RICHARD HECKE,

WALDEMAR BROCK.