(No Model.) 3 Sheets—Sheet 1.

J. A. COCHRAN & J. BRANT.

FAN.

No. 551,330. Patented Dec. 10, 1895.

Fig. 1.

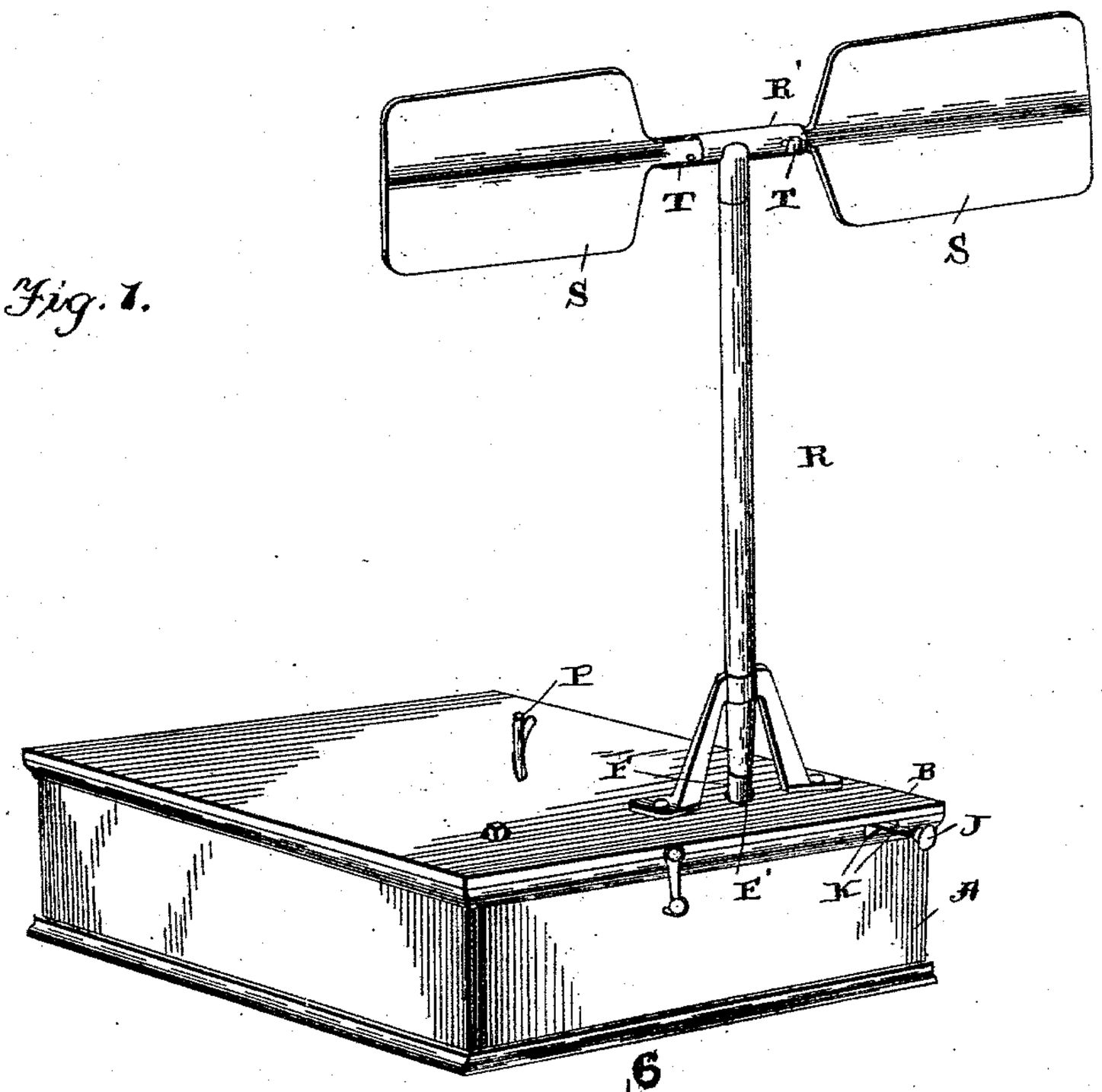

Fig. 3.

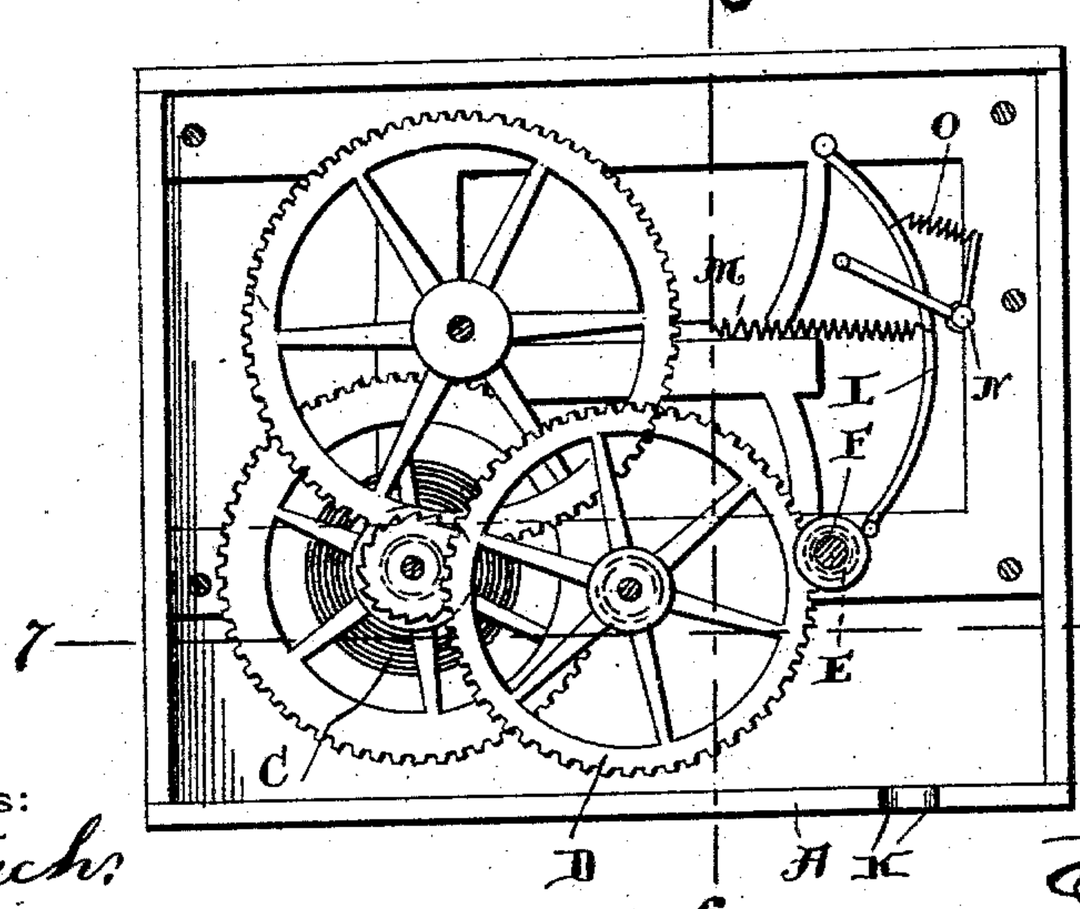

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Fig. 2.

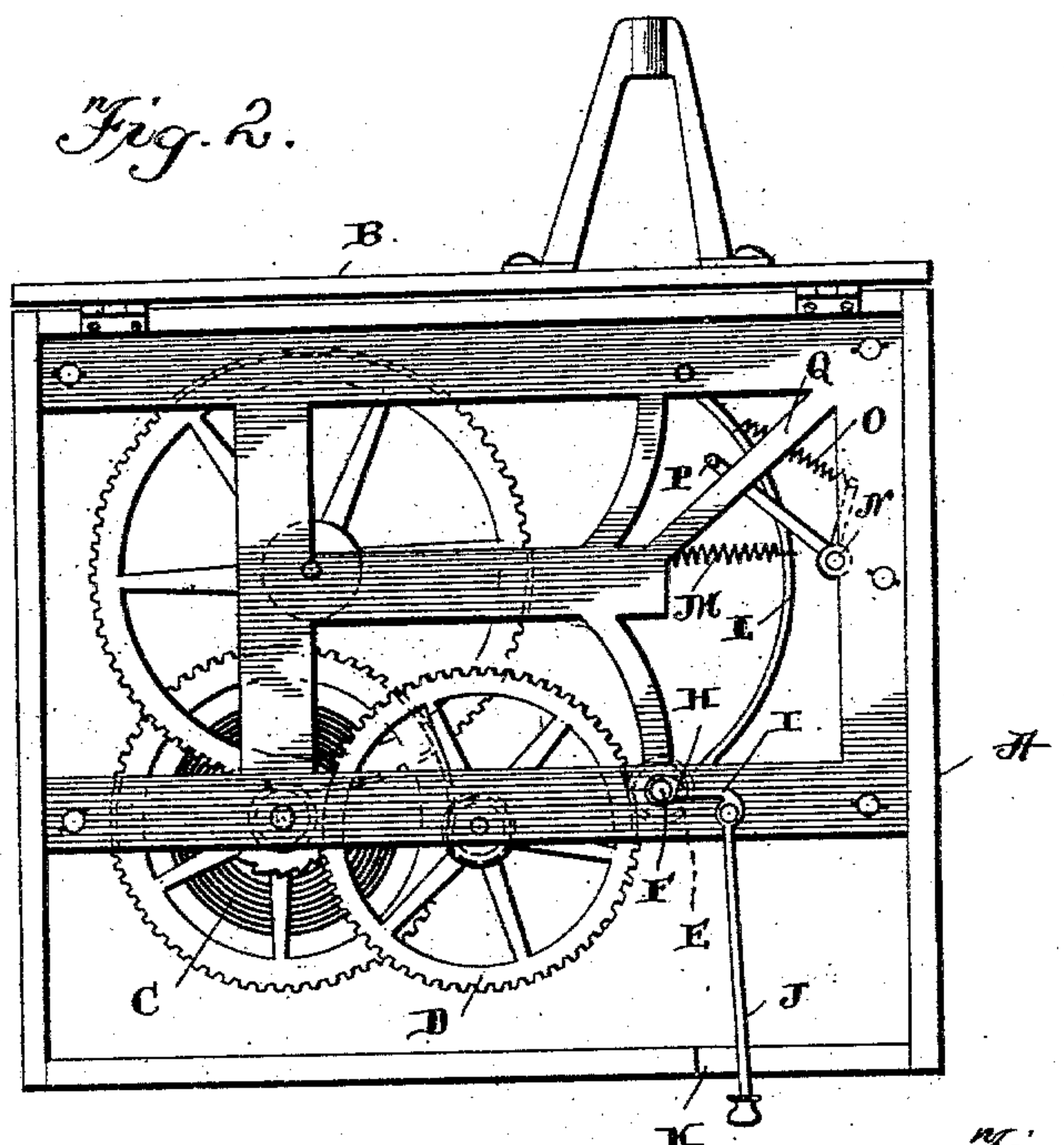

Fig. 5.

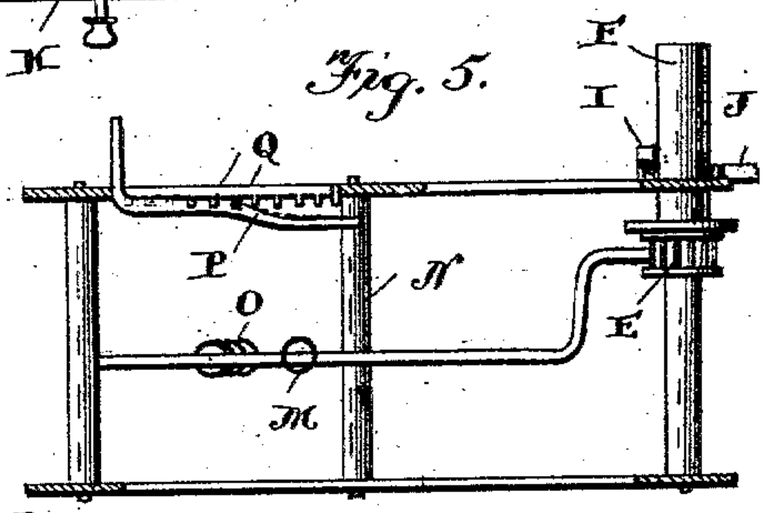

Fig. 4.

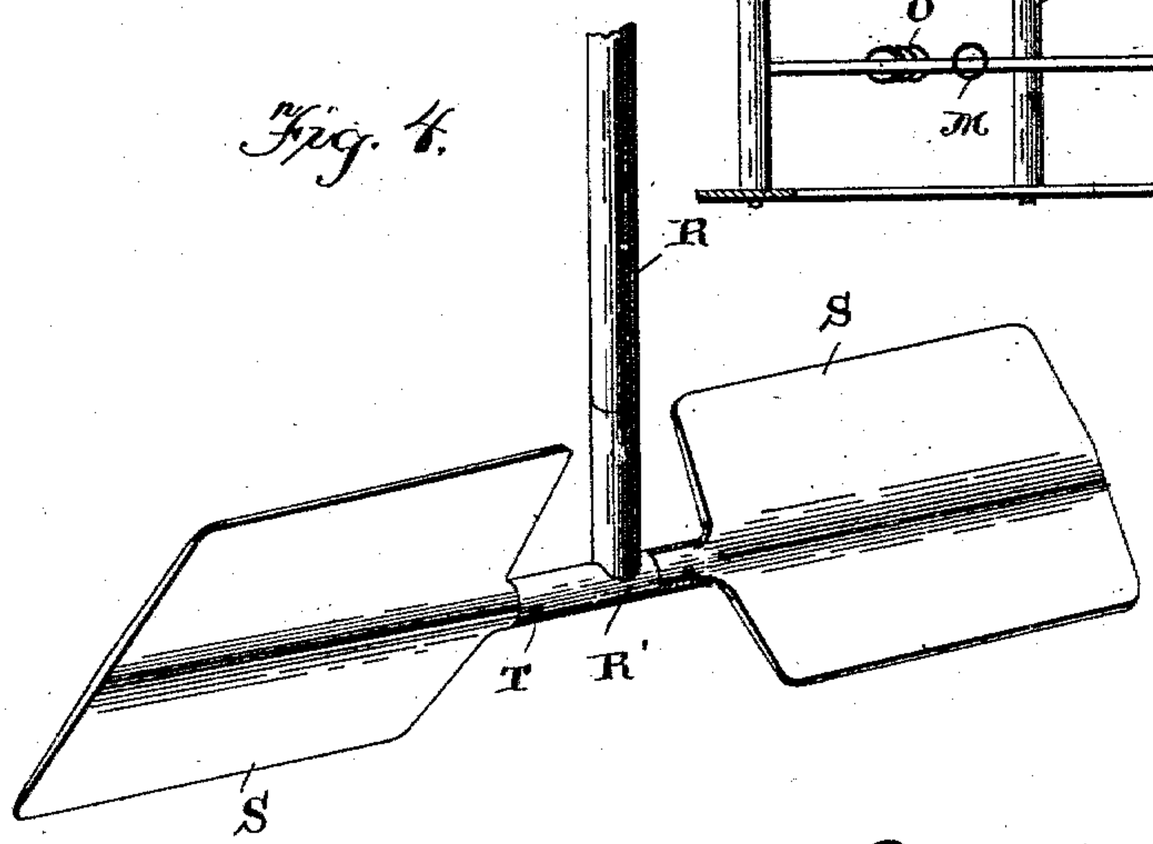

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Fig. 6.

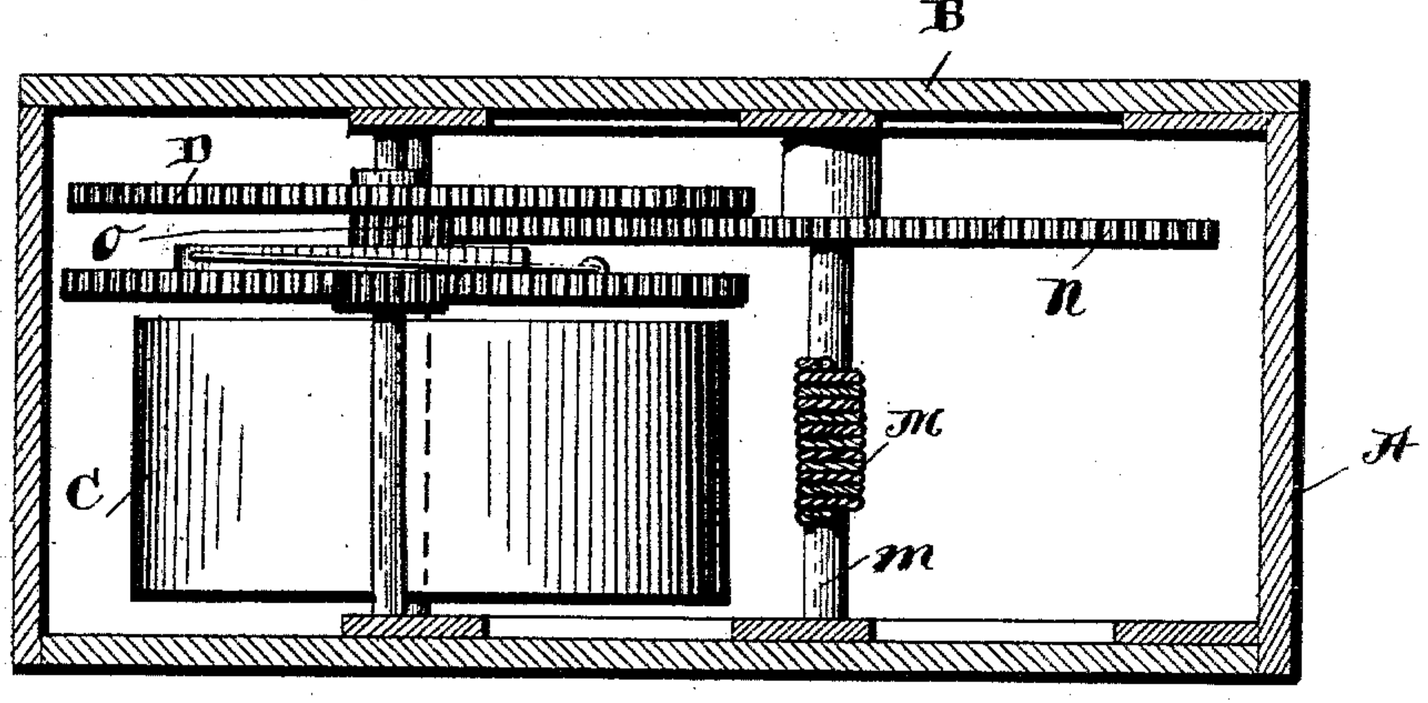
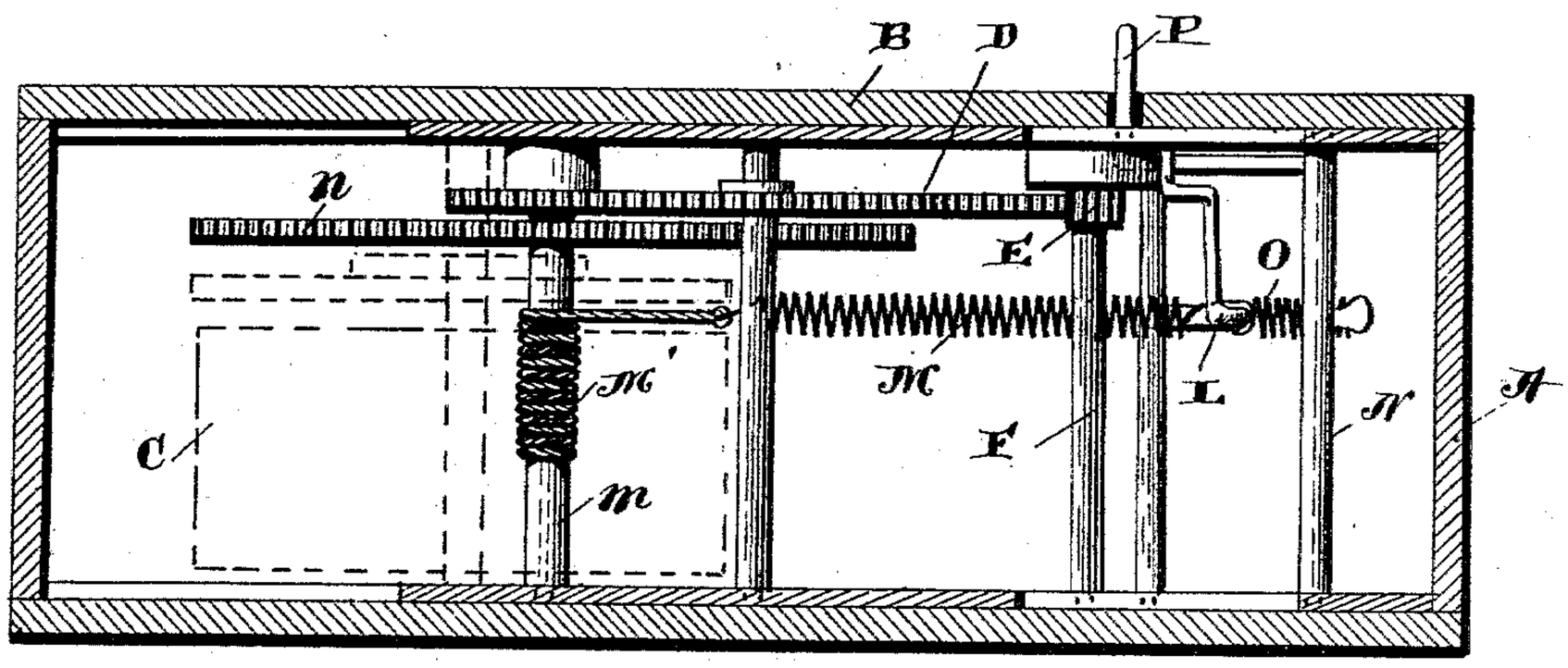


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH A. COCHRAN AND JAMES BRANT, OF FOUNTAIN BLUFF, ILLINOIS.

FAN.

SPECIFICATION forming part of Letters Patent No. 551,330, dated December 10, 1895.

Application filed May 9, 1895. Serial No. 548,794. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH A. COCHRAN and JAMES BRANT, of Fountain Bluff, in the county of Jackson and State of Illinois, have invented certain new and useful Improvements in Fans; and we 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improved fan; and the object of the same is to provide an improved driving mechanism therefor which will actuate the fan as well in an upwardly-extending position as in a depending or hanging position.

A further object is to provide an improved regulating mechanism as well as an improved mechanism for starting and stopping the motor.

Our invention consists of the novel features of construction hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the fan. Fig. 2 is a plan view with the lid of the motor-box thrown open. Fig. 3 is a sectional plan view showing the mechanism for regulating and stopping and starting the motor. Fig. 4 is an elevation of the fan in a depending position. Fig. 5 is a vertical cross-sectional view showing the adjustment of the brake-governing mechanism. Fig. 6 is a vertical longitudinal sectional view on line 6 6 of Fig. 3. Fig. 7 is a cross-sectional view on line 7 7 of Fig. 3, looking in opposite direction from that indicated in Fig. 5.

A indicates the motor-casing and B the lid therefor. The train of gear extending from the main spring C leads up to and terminates in gear D, which actuates pinion E upon the lower end of the spindle F, which latter at its upper end projects through opening F′ formed in the lid of the casing and is constructed with a socket to accommodate the shaft of the fan presently to be described. The socket is provided upon its outer side with the projection H, which is adapted to be engaged by the turned end I of controlling-lever J fulcrumed to the frame of the motor and projected at the free end out of the casing and confined by notches K so as to hold the same in either a starting or stopping position. When holding the motor still the said turned end I engages the projection H of the spindle and prevents the latter from rotating, while when disengaged the same is free to rotate as will be readily understood.

For controlling the speed of the motor we provide the swinging arm L, pivotally supported at its outer end and at its inner end adapted to bear upon the spindle of the fan-shaft, the same being normally held thereagainst by the coiled spring M. This spring is connected at its inner end by cord M′ to shaft *m*, which is driven by gear *n*, the latter receiving its impetus from the pinion *o* on the initial shaft. Thus when the spring C is wound up the gear *n* and shaft *m* are rotated, thereby winding the cord M′ on the latter and expanding spring M, so as to cause brake-arm L to bear strongly against the fan-rotating shaft, and prevent the rapid rotation thereof when the spring is exerting its full strength on the rotating mechanism, while as the strength of said spring decreases by the uncoiling the said cord M′ slowly unwinds, thereby providing a differential governor or brake for the motor.

As an additional regulating device for controlling the fan-shaft and causing the same to move either fast or slow irrespective of how fast the initial spring may go we provide the turning-shaft N, having a projected arm connected by coiled spring O to arm L, and the turning-shaft N is controlled by the angular handle P extending outward through the slot in the casing top and held by the notched bar Q in the desired position. Thus it will be seen that by drawing the said handle to one side the shaft carrying the arm will be turned backward, thus causing the spring O to exert a pull upon arm L, thus reducing the pressure of the latter upon the shaft-spindle.

The shaft R of the fan is provided at its outer end with the T-head R′, and the fan-blades S are held thereto by a socket S′ fitting over the arms of the T-head. Pins T serve to hold the fans in the desired position upon the head so that the blades may be disposed at an angle to the shaft or parallel therewith, and we prefer when the fan is arranged above

its casing and motor to have the blades arranged parallel, while if the fan is arranged as a hanging fan then we desire to arrange the blades at an angle as indicated in Fig. 4.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a motor, a fan operating shaft actuated by the motor, and a brake connected with and operated by the winding mechanism of the motor, substantially as shown and described.

2. The combination of the spring motor mechanism, the fan operating shaft actuated thereby, a brake, the spring connected thereto, the cord leading from said spring, the shaft to which the cord is connected, and the gear for rotating the shaft extended to the motor, whereby when the motor is wound up the cord will be wound upon the shaft, thus increasing the pull of the spring upon the brake, and as the motor unwinds, the cord will also unwind and thus decrease the tension of the spring on the brake, thereby securing uniformity of speed of the fan, substantially as described.

3. The combination of a motor mechanism, a spindle carried thereby, an arm pivotally supported at one end and at its free end adapted to bear against the spindle so as to govern its movement, a spring arranged to cause the arm to bear on the spindle, a second spring connected with the arm, and a mechanism for controlling said second spring so as to counteract the effect of the first named spring, substantially as shown and described.

4. The combination of a motor mechanism, a spindle actuated thereby, a brake arm pivotally supported at one end and at its free end adapted to bear against the spindle, the spring for pulling the arm against the spindle, the shaft carrying an arm, a spring connecting the arm with the said brake arm for counteracting the effect of the first named spring, the handle extending from the shaft for turning it, and the holder for confining the handle at the desired adjustment.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH A. COCHRAN.
his
JAMES × BRANT.
mark

Witnesses:
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E. L. POPEJOY.