

W. E. COLEMAN.

FAN.

(Application filed Jan. 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

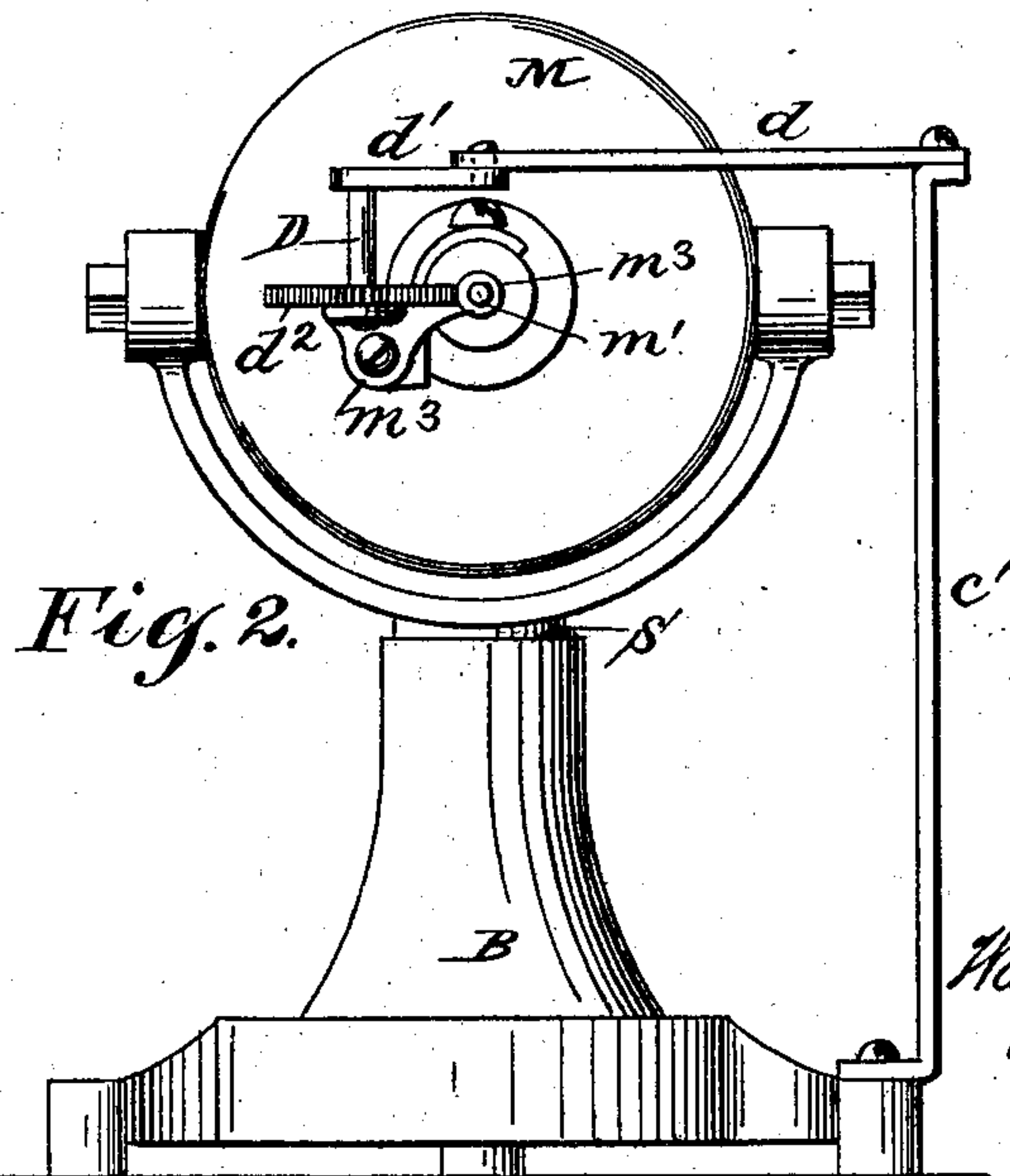
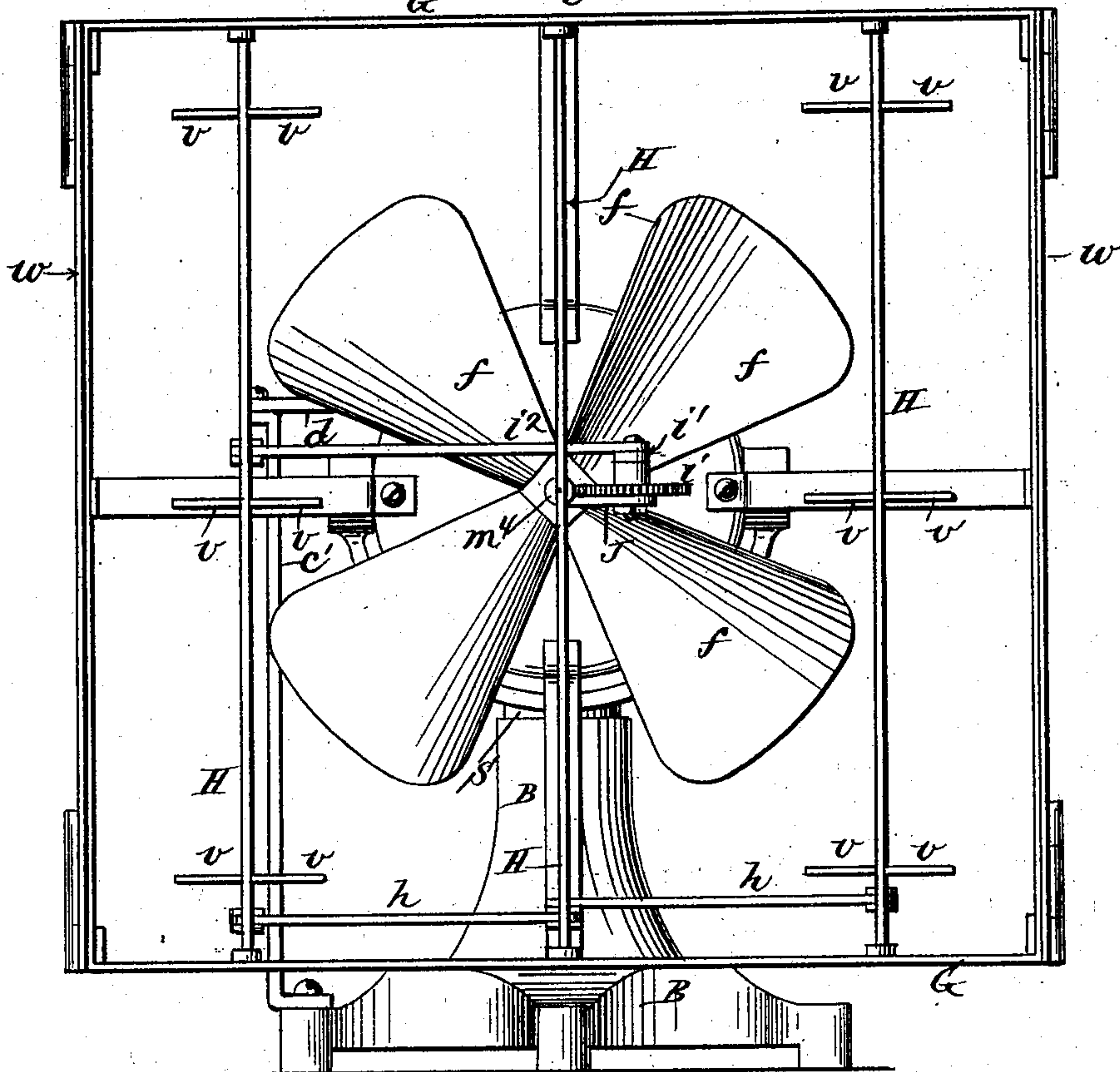


Fig. 2.

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2 Sheets—Sheet 2.

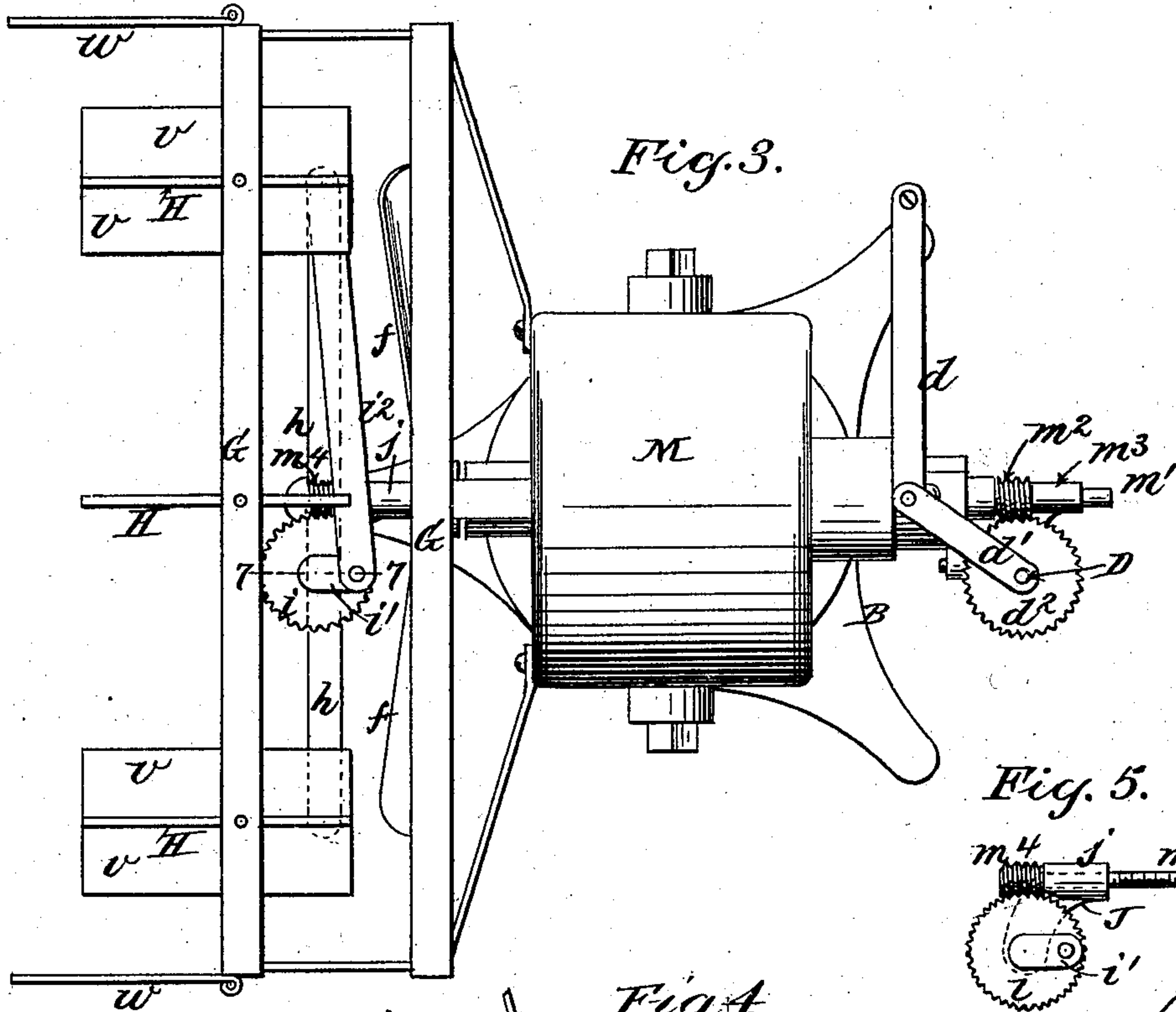


Fig. 5.

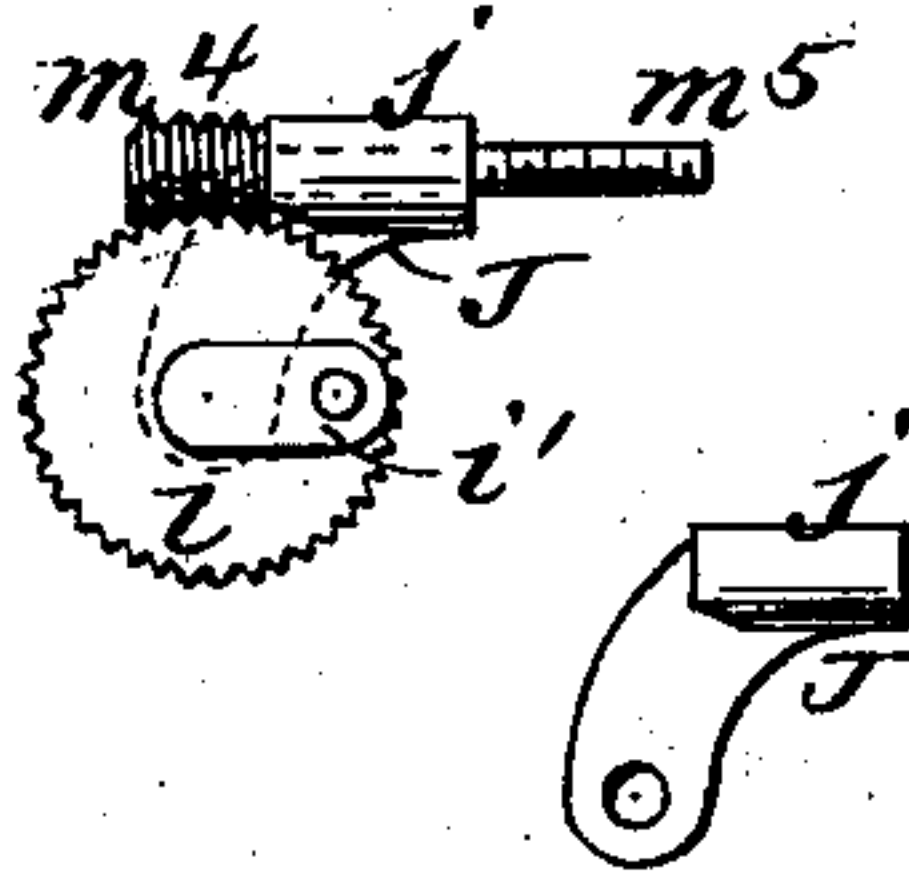


Fig. 6.

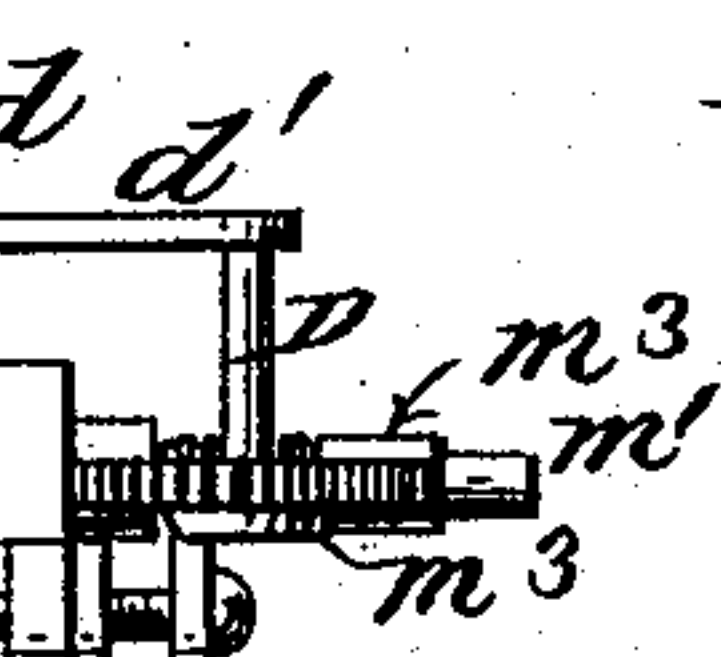
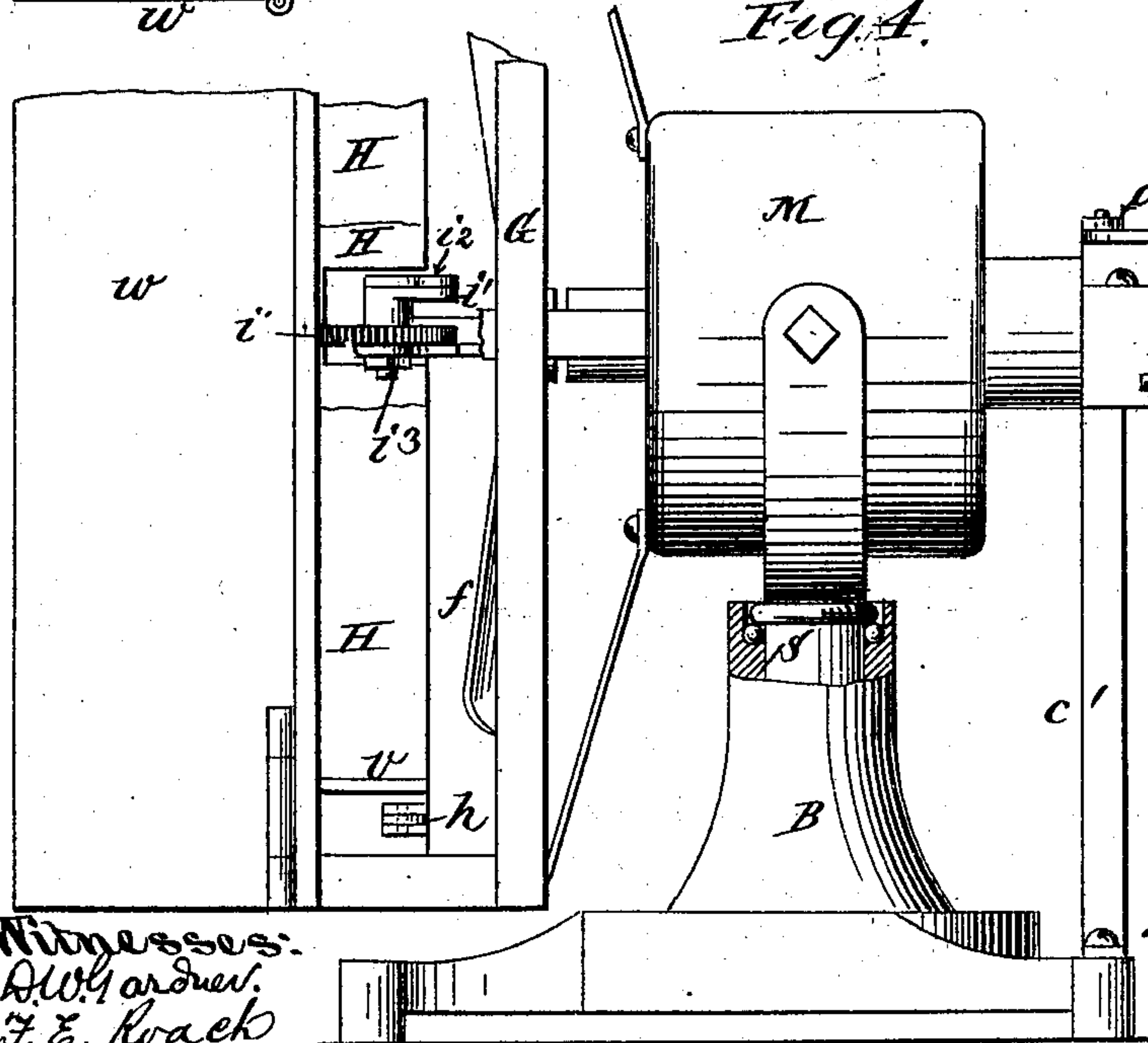
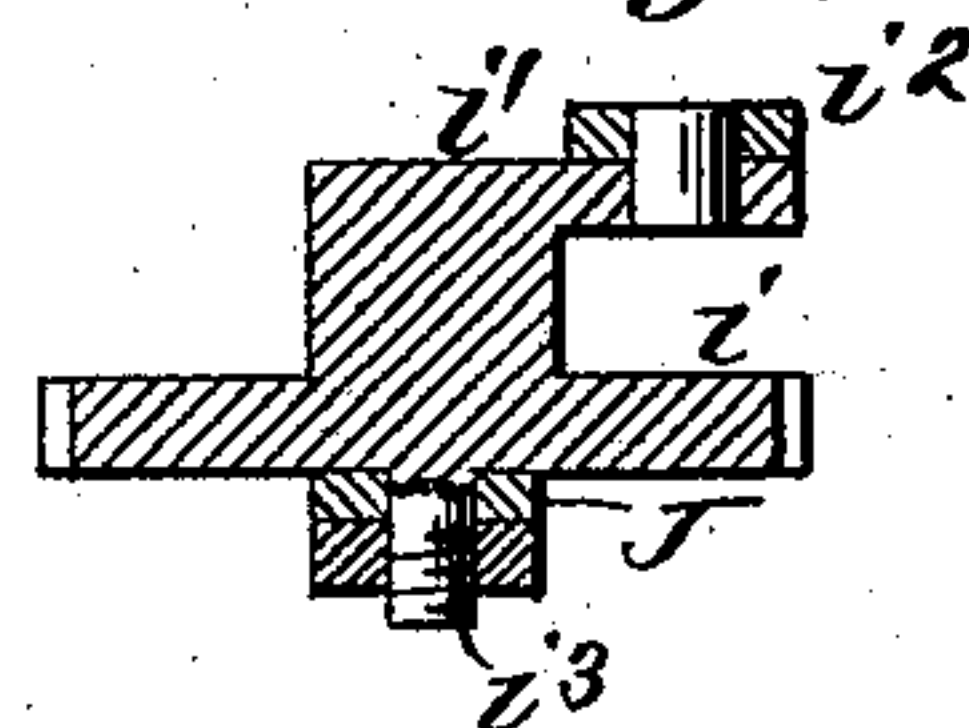


Fig. 7.



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UNITED STATES PATENT OFFICE.

WALTER E. COLEMAN, OF NEWDORP, NEW YORK, ASSIGNOR TO THE COLEMAN MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

FAN.

SPECIFICATION forming part of Letters Patent No. 708,623, dated September 9, 1902.

Application filed January 17, 1902. Serial No. 90,144. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. COLEMAN, a citizen of the United States, residing at Newdorp, Richmond county, and State of New York, have invented certain new and useful Improvements in Fans, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to means for controlling and directing air-currents generated by electric fans, and is an improvement upon the construction disclosed in my concurrent application, Serial No. 85,374; and it consists in the special construction and arrangement of parts hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1 is a front elevation. Fig. 2 is a rear elevation, the front portion of the apparatus being omitted. Fig. 3 is a top view; Fig. 4, a side elevation, certain of the parts being broken away and in section. Figs. 5 and 6 are detail views showing the arrangement of the worm and gear by which the deflectors are vibrated. Fig. 7 is an enlarged section upon plane of line 7 7, Fig. 3.

In the present case the motor M is movable only in a horizontal plane, being mounted upon a vertical spindle S, supported upon ball-bearings or otherwise in the base B. In my concurrent application hereinbefore referred to the motor M is pivotally supported in a ring, which is also pivotally supported in such manner that the motor may be tilted vertically as well as moved horizontally. Projecting rigidly from the base B is the standard c' , to the upper end of which is pivotally connected the lever-arm d , the other end of the pivoted lever-arm d being pivotally connected to the wrist-pin of the crank-arm d' upon the upper end of the vertical shaft D, mounted upon the bracket m^3 , which is rigidly attached to the frame of the motor.

The relative arrangement and operation of the standard c' , lever-arm d , crank d' , shaft D, wheel d^2 , and worm m^2 is substantially the same as that set forth in my concurrent application hereinbefore referred to, except that in the present case the standard c' is rigidly attached to the base B instead of to a ring in

which a motor is mounted upon vertical trunnions, the object being to simplify the device as a whole by the omission of the ring, &c., while adapting the parts to effect a horizontal reciprocating movement of the motor and fan only. Attached to the front of the motor by suitable means and moving therewith is the guard-frame G of rectangular or other desired form, in which are mounted a plurality of deflectors H, connected together by links h . In the present case these deflectors H are vibrated directly by means of a worm m^4 on the forward end of the shaft m' , said worm m^4 engaging with a wheel i , mounted upon a hanging bracket J, as hereinafter described, and carrying a crank-arm i' , the wrist-pin of which engages pivotally with one end of a connecting-rod i^2 , engaging pivotally at its opposite end with one of the deflectors H, so that the rotation of the crank i' will reciprocate the rod i^2 , which will thereby be made to vibrate all the deflectors H by reason of their link-couplings $h h$. Owing to the situation of the hub of the fan-blades f behind the worm-gear m^4 and wheel i , the latter cannot conveniently be supported from the motor-casing, and for this reason I attach the worm m^4 to the front end of the shaft m' by means of a threaded stud m^5 , the portion of the stud between the worm m^4 and the screw m^5 forming a bearing for the sleeve j of the hanging bracket J, as will be understood by reference to Figs. 5 and 6. Referring to Fig. 7, it will be seen that the axis of the wheel i is formed with a threaded stud i^3 , which passes through the outer end of the hanging bracket J, where it engages with a nut for holding the parts together. It will also be seen that the crank i' is rigid with the hub of said wheel. The connection of the crank-arm i' with the connecting-rod i^2 in practice is sufficient to hold and retain the wheel in connection horizontally with relation to the worm m^4 .

The above construction while actually used is shown here by way of illustration only, since it is obvious that the wheel i and connections may be supported by any well-known mechanical expedient without departing from the spirit and intent of my invention.

Adjustable wings $w w$ are mounted adjust-

ably on the side or top and bottom members of the guard-frame G and may be set at any desired angle with relation to the said frame and fan for the purpose of concentrating the
 5 air-current or deviating it in any desired direction. As shown in the drawings, they are hinged to the side members of the guard-frame.

Cross-vanes *v v* may be attached to the deflectors H, projecting laterally at right angles thereto, for the purpose of confining and directing the current of air.

What I claim as my invention, and desire to secure by Letters Patent, is—

15 1. The combination of the fan *f*, electric motor M mounted upon the vertical spindle S, said spindle S, supported in the base B, by means which admit it to turn axially, said base B, the standard *c'*, rigidly secured to said
 20 base, the lever-arm *d*, pivotally connected to said standard *c'*, and to the crank *d'*, the crank *d'*, shaft D, and wheel *d*², and the motor-shaft formed with the screw-worm *m*², engaging with the wheel *d*², for the purpose and substantially in the manner described.

25 2. The combination of the fan *f*, electric motor M mounted upon the vertical spindle S, said spindle S, supported in the base by means which admit it to turn axially, said
 30 base B, means for turning the motor horizontally on said base the guard-frame G, supported upon the motor-casing, the deflectors

H pivotally supported in the frame G, the links *h*, coupling the deflectors H together, the connecting-rod *i*², pivotally connecting
 35 the deflectors with the crank *i'*, said crank *i'*, the gear *i*, and the screw-worm *m*⁴, upon the motor-shaft, arranged and operating substantially in the manner and for the purpose set forth.

3. The combination of an electric motor and fan, a guard-frame G, supported upon the frame of the motor, deflectors H, mounted pivotally in said guard-frame and formed with cross-vanes *v*, together with means for
 45 vibrating said deflectors H on their axes, substantially in the manner and for the purpose set forth.

4. The combination of an electric fan and motor, a guard-frame, deflectors mounted
 50 pivotally in said guard-frame, pivotally-connected links coupling said deflectors together, a worm-gear on the motor-shaft in front of the fan, a gear-wheel engaging said worm, a crank attached to and actuating said gear-
 55 wheel, and a connection-rod pivotally connecting said crank with the deflectors for the purpose of imparting a vibratory motion to the same, substantially as set forth.

WALTER E. COLEMAN.

Witnesses:

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