

(No Model.)

2 Sheets—Sheet 1.

E. F. BRIGGS.

ROTARY VENTILATOR.

No. 338,473.

Patented Mar. 23, 1886.

Fig. 2.

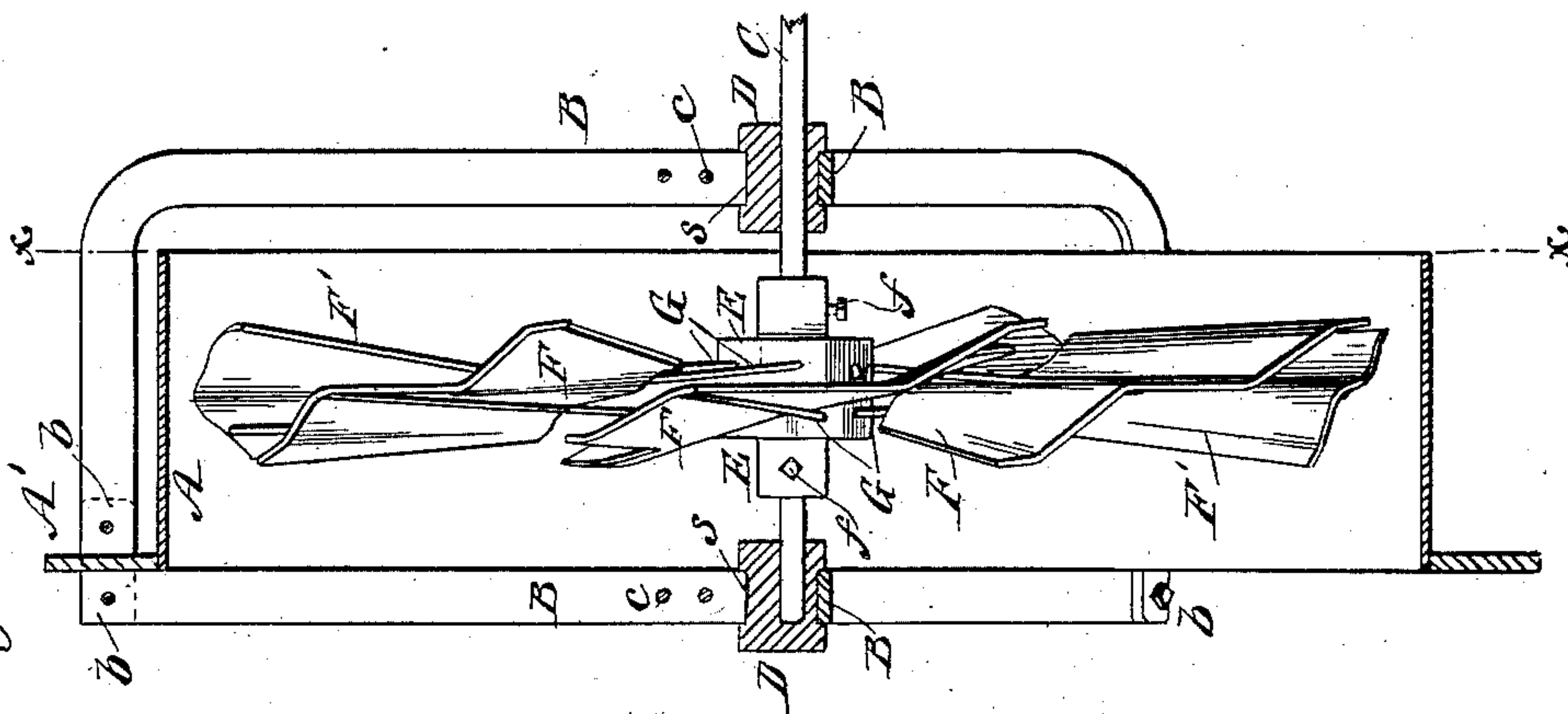
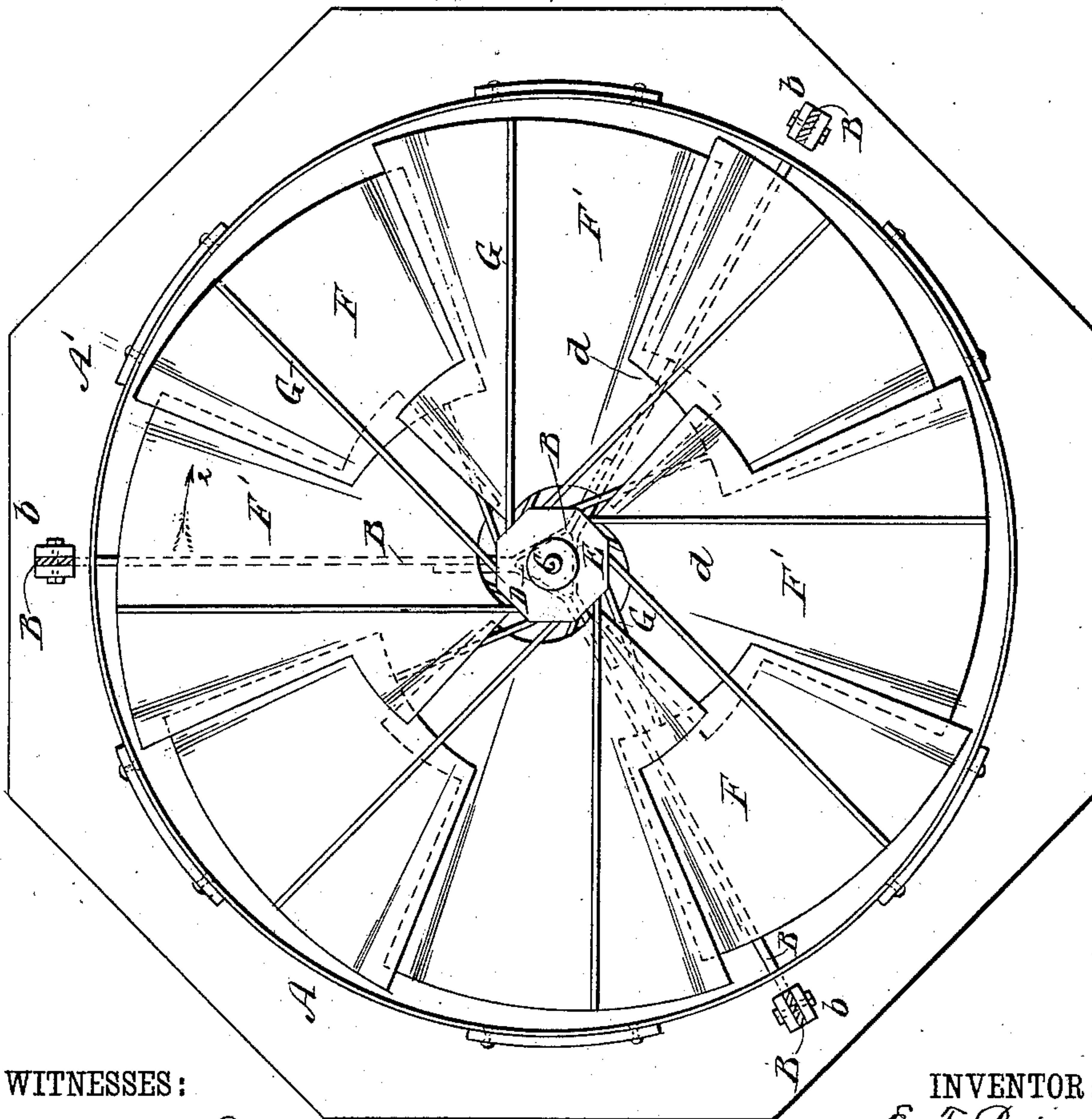


Fig. 1.



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Fig. 3.

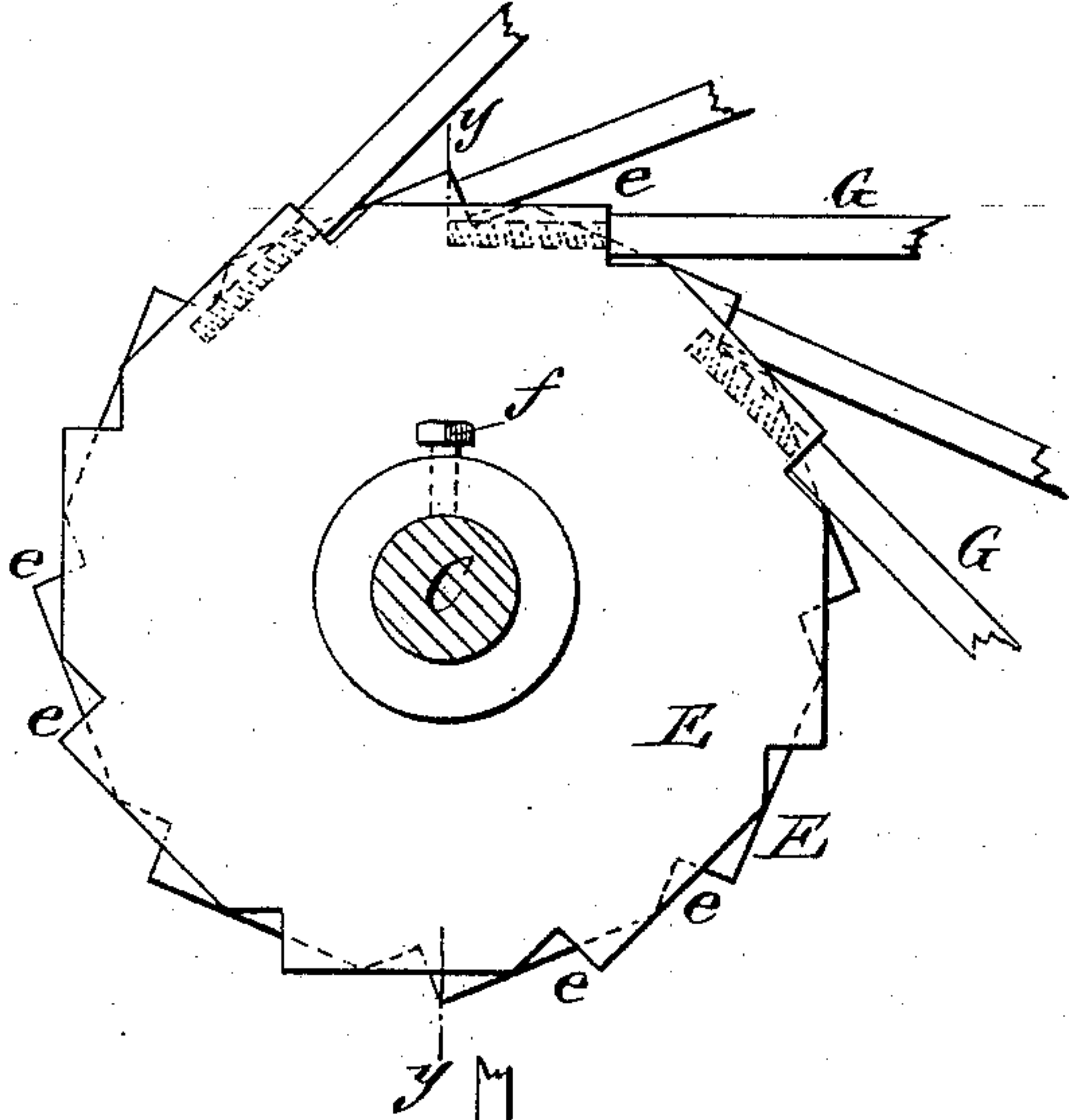


Fig. 4.

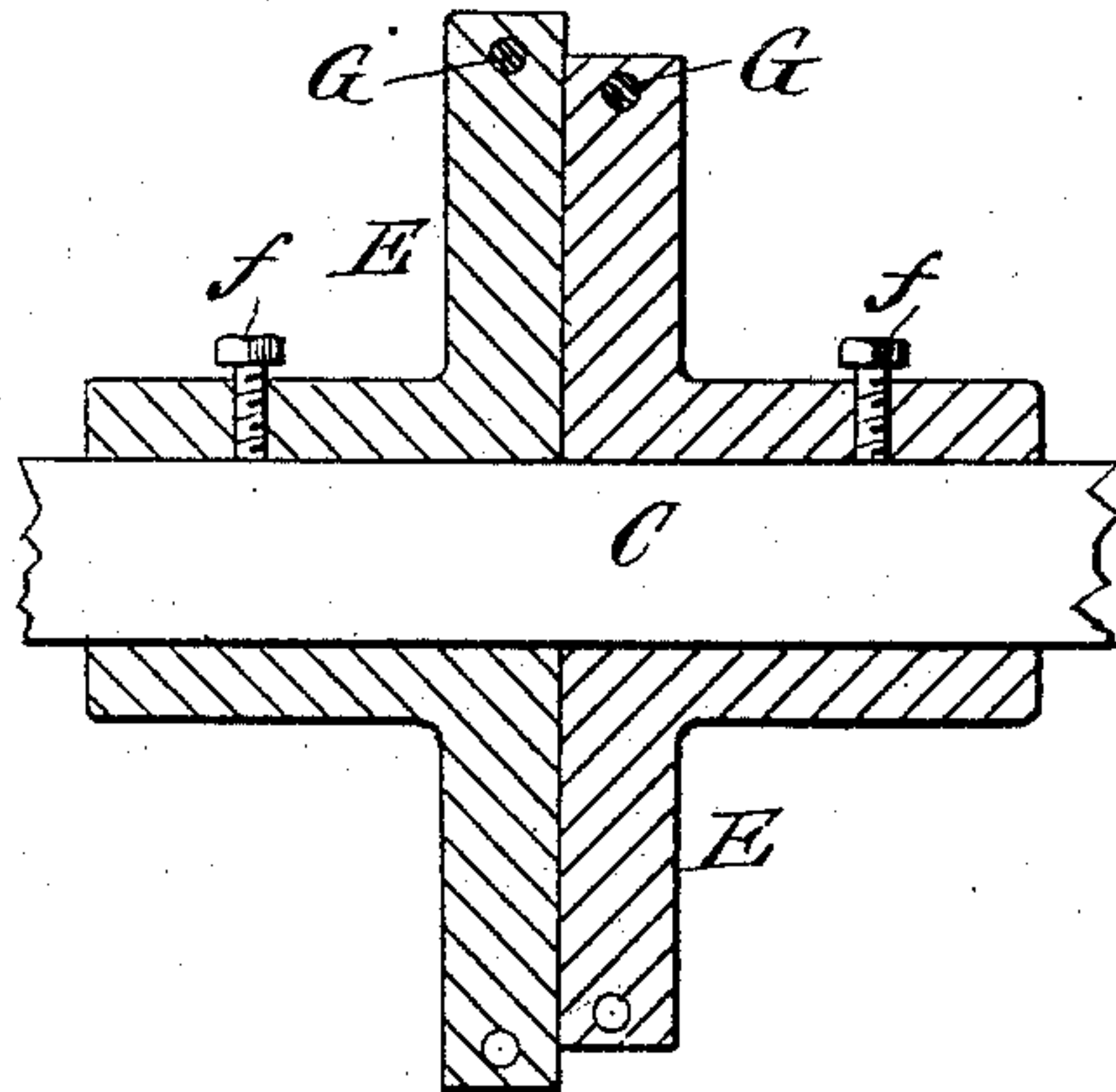


Fig. 5.

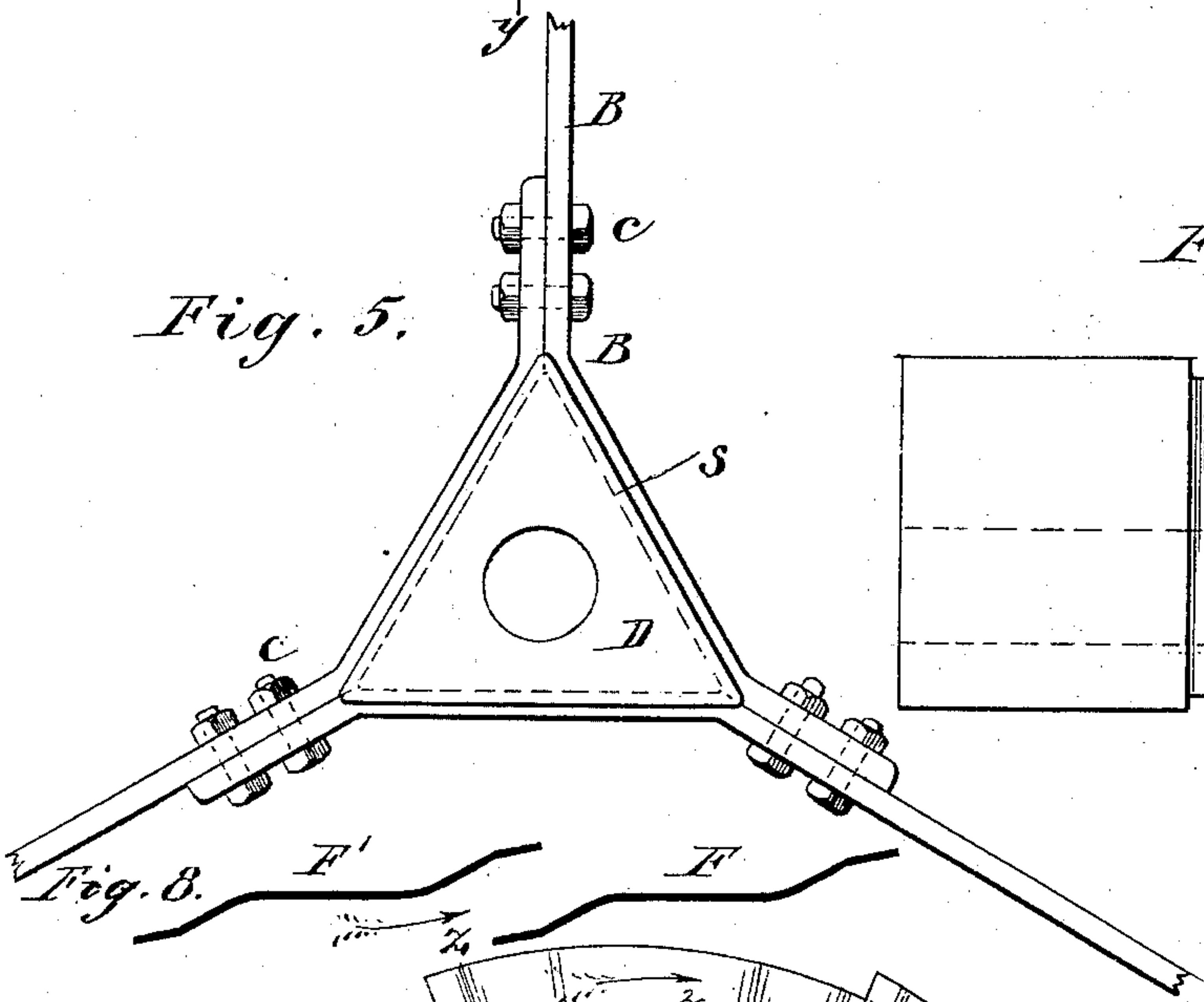
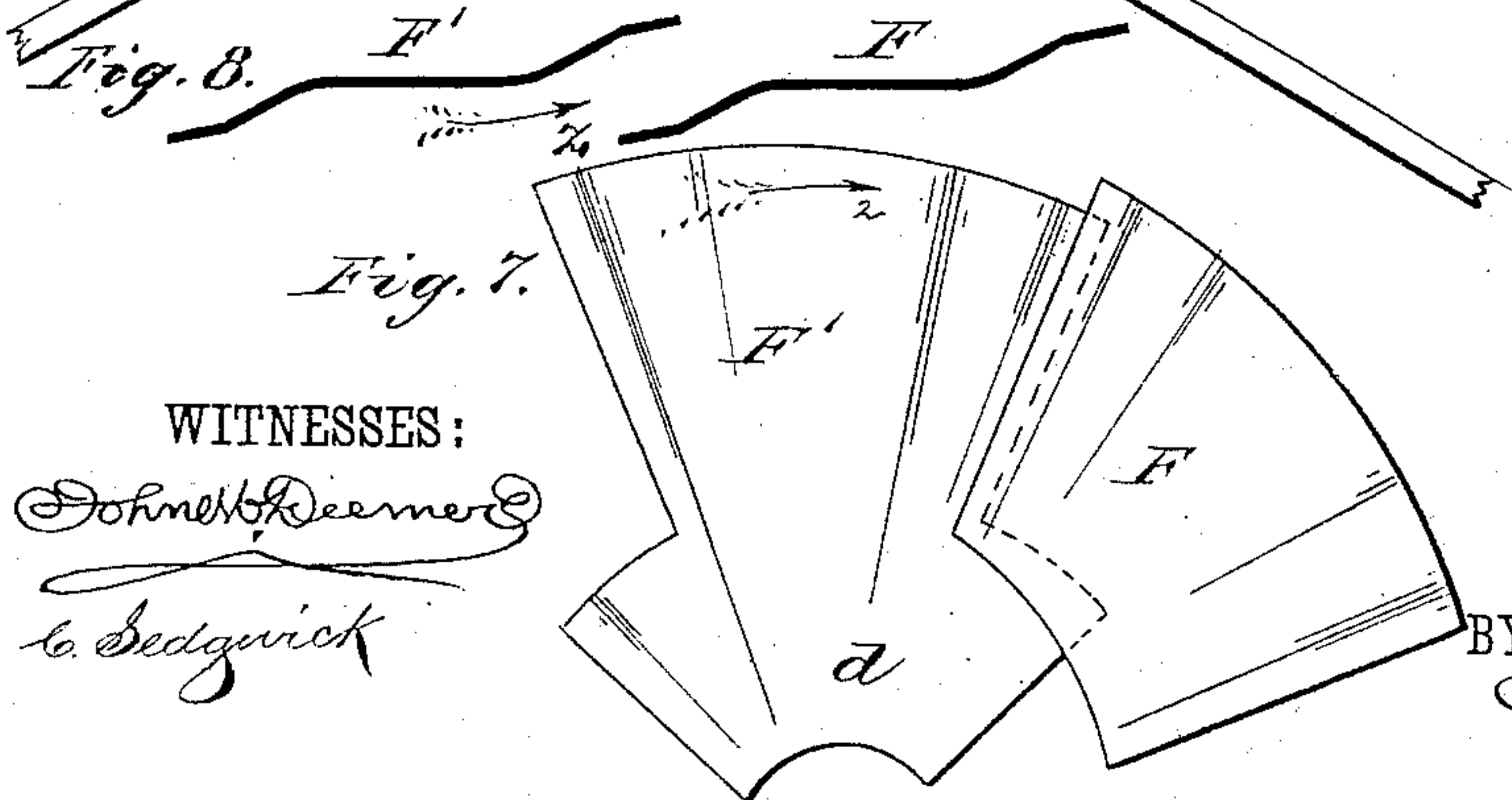
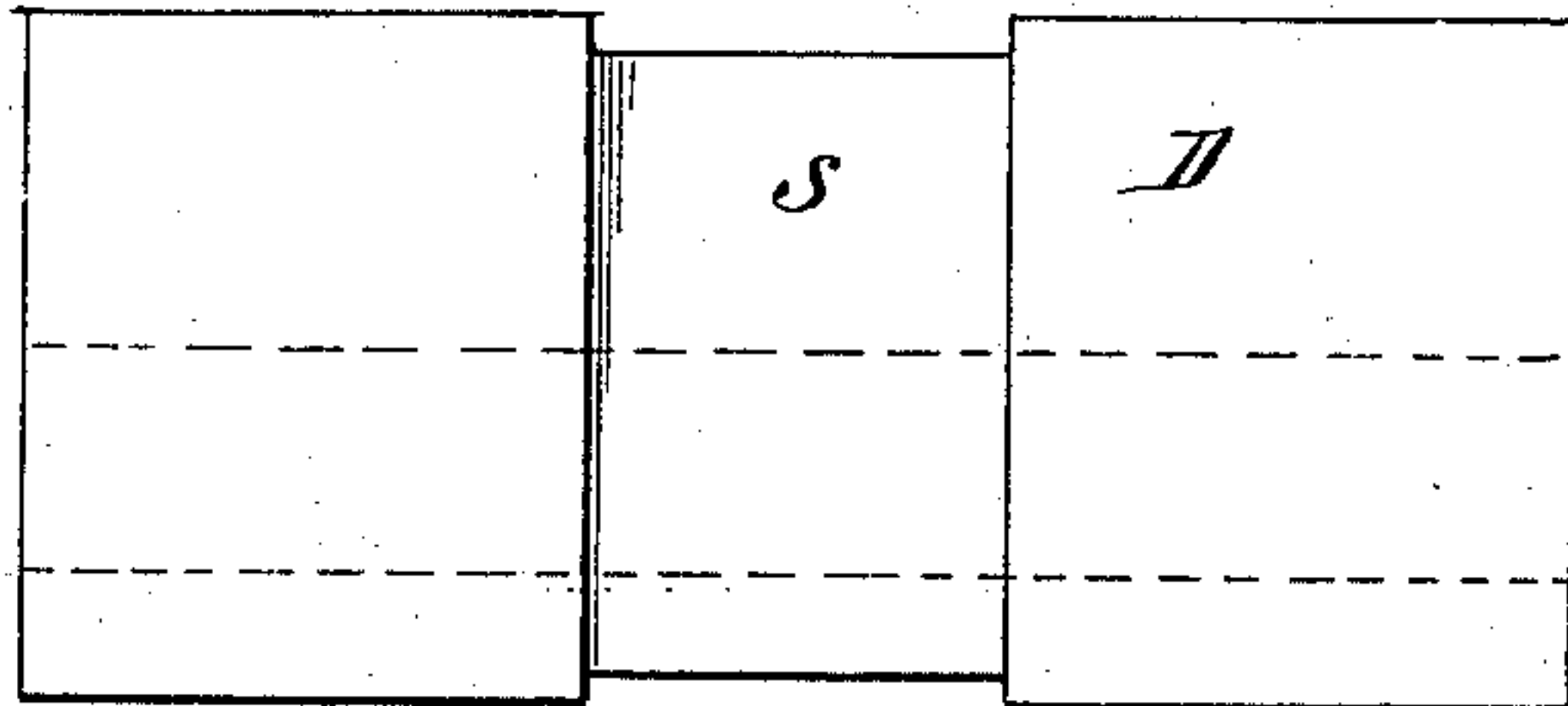


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWIN F. BRIGGS, OF BROOKLYN, NEW YORK.

ROTARY VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 338,473, dated March 23, 1886.

Application filed November 19, 1885. Serial No. 183,342. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. BRIGGS, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in Rotary Ventilators, of which the following is a full, clear, and exact description.

This invention more particularly relates to rotary ventilators for ejecting foul air from
10 apartments or buildings, the same either occupying a horizontal, vertical, or other position—such rotary ventilators, for instance, as are used in the sides of walls of buildings and driven by steam or other power.

15 The invention consists in a certain construction of the vanes of the rotating wheel of the ventilator, whereby its central portion is made more effective and its general efficiency increased.

20 It also consists in certain means for varying the angular positions of the vanes, and in the frame and boxes or bearings for carrying the wheel shaft or spindle, all substantially as hereinafter described and shown in the drawings.

25 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

30 Figure 1 represents a rear or inside sectional view, upon the line *xx* in Fig. 2, of a rotary ventilator embodying my invention. Fig. 2 is a side view of the ventilator-wheel, with its frame and case in section. Fig. 3 is
35 a face view, upon a larger scale, of the hub portion of the wheel, and Fig. 4 is a section thereof upon the line *yy* in Fig. 3. Fig. 5 is a face view of a portion of the ventilator-frame with one of the boxes or bearings for the
40 wheel-spindle carried by said frame, and Fig. 6 is a longitudinal view of said box or bearing. Figs. 7 and 8 are diagrams illustrating the facial construction of the vanes and the profile of them in direction of their width.

45 A indicates the cylindrical case in which the flutter or ventilating-wheel works, A' being the face-plate of the said case. Secured by bolts or rivets and lugs *b b* on the front and back of the face-plate are the frames or frame-
50 sections B B, which carry the bearings in which the shaft or spindle C of the ventilating-wheel rotates. These frames are each

made up of three flattened bars, arranged in radial relation with the cylindrical opening through the case, the bars of the frame B on
the back or inner surface of the ventilator
55 being bent at their outer ends, as shown in Fig. 2, to receive the case A within them. The bars composing each frame are equidistant from each other, and their inner ends, *b*,
60 are bent to form a triangular central opening for reception of the boxes or bearings D, in which the spindle C runs, and to provide for uniting the bars together, as by rivets or bolts
65 *e*. The angular openings formed by the bent inner ends of the bars of the frame B are of less area than the end areas of the boxes D. Each of these boxes, however, has a groove,
70 *s*, in its sides to receive the inner ends of the bars within and around it, said grooved portion being of corresponding outline to the angular opening formed by the inner end portion of the bars, so that the bars interlock
75 with each box on its several sides, and, when secured to each other in each frame, firmly clamp or hold the box to its place both laterally and endwise. This forms a very simple and secure means of carrying and securing the boxes or bearings D.

The flutter or ventilating-wheel is composed
80 of a transversely-divided hub, or, in other words, two separate hub-sections, E E, oblique vanes F F', and rods or arms G G, connecting the vanes with the hub-sections.

The vanes F F', instead of being of the
85 usual sector-like form, extending from the perimeter of the wheel to its center or hub, are of special and peculiar construction. Thus the vanes F, which may be alternate ones, and are of arc shape, are only made to extend
90 partly along their arms from the perimeter of the wheel, thereby, so far as they are concerned, leaving a large central opening through the wheel outside of the hub. This opening, however, is mainly covered by the
95 inner end portions, *d*, of the intermediate vanes, F', the outer end parts of which vanes correspond to the vanes F, while the inner portions, *d*, are of a wider construction than the inner ends of the main or outer portions
100 of the vanes F', and extend on both sides beyond the inner ends of the main portions of said vanes, thus making more effective or available the inner or central portion of the

wheel for ventilating purposes. To make this construction, however, fully effective or practicable, the vanes $F F'$, including the widened inner portion, d , of the vanes F' , are of an approximately ogee shape or waved construction in direction of their width, curving outward or forward on their advance edges and inward or backward on their rear edges, the wheel rotating in the direction indicated by the arrow z . By this construction of the vanes, as more clearly shown in the diagrams Figs. 7 and 8, a sufficient space is left between the several vanes for passage of the air between them, and the vanes are made to scoop in the air, as it were.

The arms $G G$, which carry the vanes, are tangentially, instead of being radially, arranged relatively to the center of the wheel, the inner ends screwing into step-like projections e on the hubs or hub-sections E . This contributes to the strength of the wheel. Each vane, $F F'$ is carried by duplicate arms $G G$ on opposite sides, respectively, of the vanes, the one near the advance edge and the other near the rear edge of the vanes, and said arms are connected the one with one hub-section E and the other with the other hub-section. These hubs or hub-sections $E E$ are adjustable along and around the driving-spindle C of the wheel, and are secured in position when set by set-screws f . This adjustment of the hubs and turning or screw-connection of the arms of the wheel with the hubs provides for varying the obliquity of the vanes, as required.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a rotary ventilator, the combination of the outer vanes, F , of the ventilator-wheel with the intermediate vanes, F' , constructed with widened inner portions, d , arranged to extend on opposite sides beyond the inner ends of the outer or main portions, substantially as and for the purposes specified.

2. The hub-sections $E E$ of the wheel, having step-like projections e , in combination with the vanes of the wheel, and the arms $G G$, arranged in tangential relation with the wheel and fitted to screw into said step-like projections, substantially as shown and described.

3. In a rotary ventilator, the combination, with the case A and face-plate A' , of the frame or frame-sections $B B$, composed of bars bent at their inner ends to connect with each other, as described, and to leave angular openings at the center of the ventilator for reception of boxes or bearings, essentially as described.

4. In a rotary ventilator, the frame-sections $B B$, each composed of three flattened bars having their inner ends bent and secured to each other, so as to leave a triangular opening within them at the center of the ventilator, in combination with the case A and with the boxes or bearings $D D$, having grooves s in their sides, of corresponding outline to the triangular opening formed by the bent inner end portions of said bars, substantially as and for the purposes herein described.

EDWIN F. BRIGGS.

Witnesses:

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JACOB RITSCHY.