

No. 622,424.

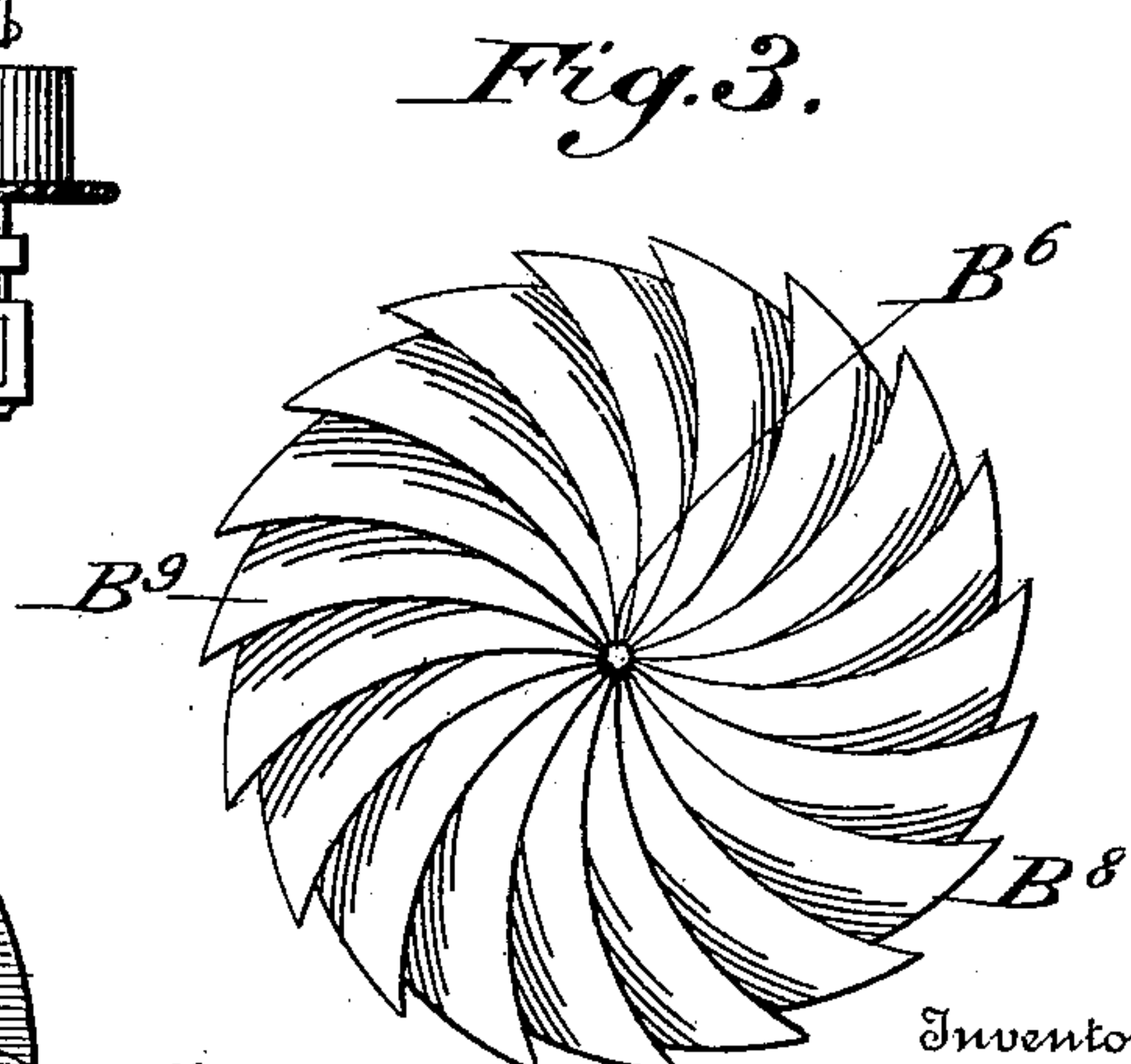
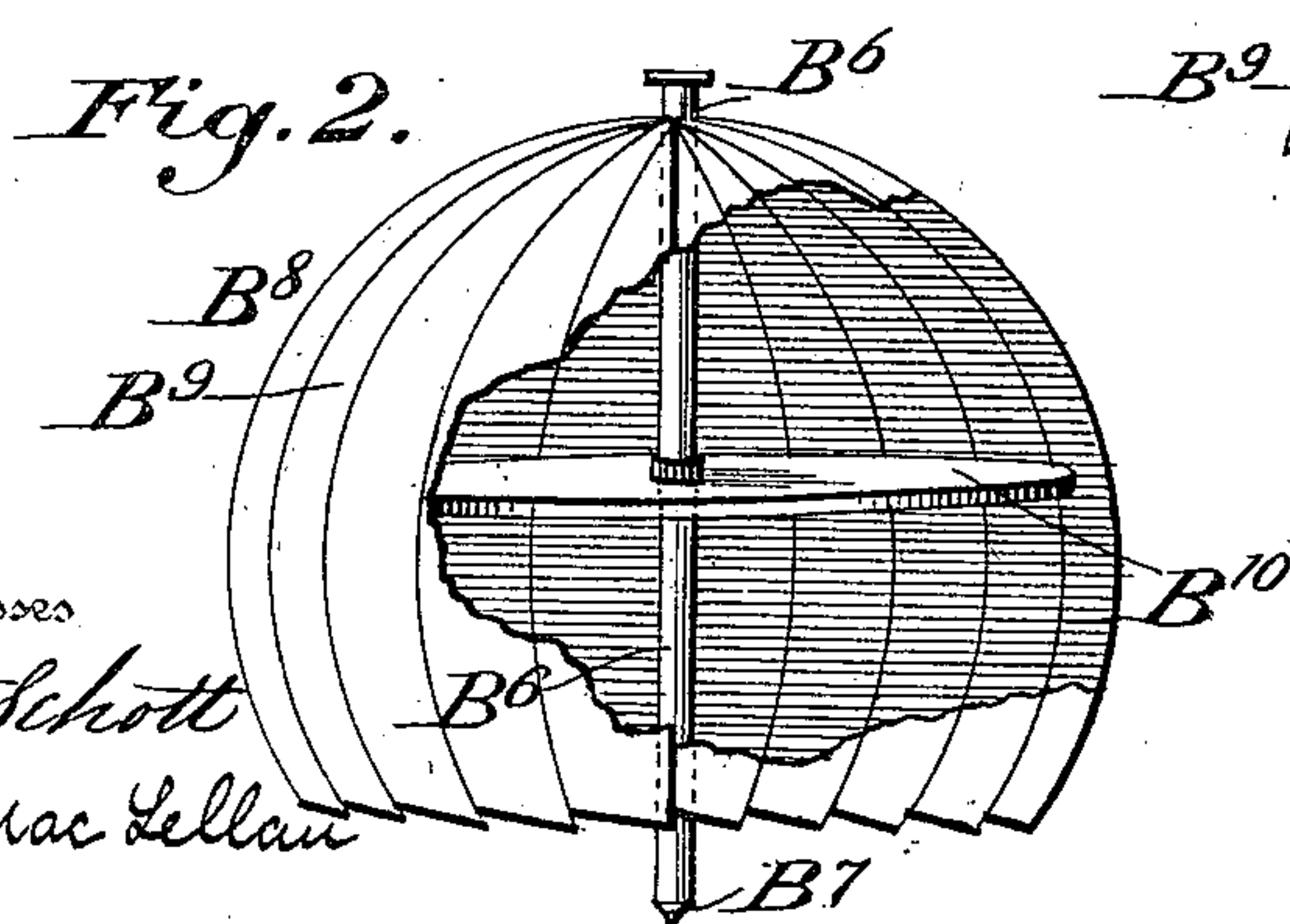
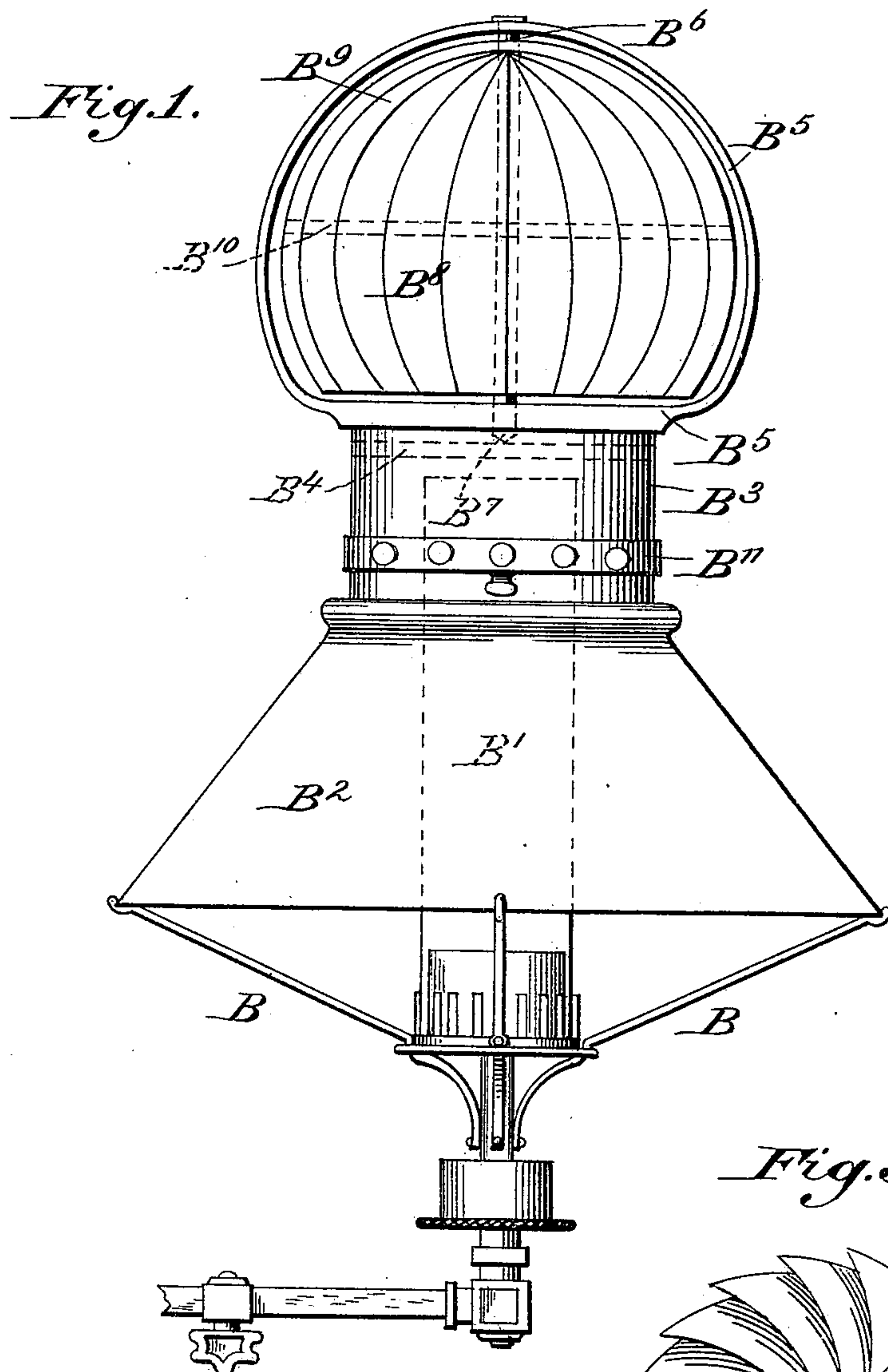
Patented Apr. 4, 1899.

L. P. HAGER.

APPARATUS FOR HEATING AND AGITATING AIR.

(Application filed Aug. 13, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS P. HAGER, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO THE BAY STATE ELECTRIC HEAT AND LIGHT COMPANY, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR HEATING AND AGITATING AIR.

SPECIFICATION forming part of Letters Patent No. 622,424, dated April 4, 1899.

Application filed August 13, 1898. Serial No. 688,522. (No model.)

To all whom it may concern:

Be it known that I, LOUIS P. HAGER, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Heating and Agitating Air, of which the following is a specification.

My invention relates to improvements in apparatus for heating and diffusing a body of air throughout an apartment to be heated.

In carrying out my invention I locate a hood above the upper end of a chimney and revolve the same by the ascending current of heated air and products of combustion ascending through said chimney from a source of heat which is also used for heating the air of the apartment, so that in my apparatus one source of heat acts as a motive power to revolve the hood which receives the heated air and products of combustion and also heats the air of the apartment.

By my invention the heated air and products of combustion from a source of heat are intercepted as they are discharged from the top of the chimney and diffused throughout the apartment to be heated by the revolving hood, thereby producing an equable temperature instead of allowing the heated air and products of combustion to ascend to the ceiling, as is the case with ordinary radiators, which heat by natural convection.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a side view of an ordinary Argand gas-burner with the revolving hood above the upper end of the chimney to receive the heated air and products of combustion to prevent their ascending to the ceiling and adapted to diffuse the same throughout the apartment upon the revolution of said receiving-hood. Fig. 2 is a detail side view in section of the hollow revolving hood into which the heated air and products of combustion ascend. Fig. 3 is a plan view of the revolving hood, showing the floats separated at the sides of the hood to form lateral openings and in contact

at the top in order to close the top of the hood, and thus cause the heated air and products of combustion to pass out at the sides.

Like letters of reference refer to like parts throughout the several views.

In Fig. 1, B represents an ordinary Argand gas-burner with the usual chimney B', around which is located the shade B², and resting upon the upper edge of said shade is a metallic chimney B³ of greater diameter than the chimney B', and across the upper part of said chimney is a diametrical supporting-rod B⁴.

B⁵ represents a supporting-arch, and in the upper portion of the same is journaled the rod B⁶, the lower end of which, B⁷, rests and turns in the supporting-rod B⁴, and B⁸ represents a revolving hood composed of a number of separated curved floats B⁹, secured to the rod B⁶ and turning therewith. The floats are in contact at their upper ends, thus making a closed top for the hood, and are separated from each other at the sides of the hood to form lateral openings, through which the heated air and products of combustion pass, owing to the top being closed, and in their discharge act on the floats, which are placed at an angle to the line of discharge of the heated air and products of combustion and cause the revolution of said hood, and said lateral discharge facilitates the diffusion of the heated air and products of combustion in a horizontal direction. Located within said revolving hood and at about the center thereof is a diaphragm B¹⁰, supported in a horizontal plane at its center by the vertical rod B⁶, and the object of this diaphragm is to arrest the upward current of heated air and products of combustion and deflect the same in a horizontal direction, thereby causing them to come in contact with the floats at their center, where the pitch is best adapted for motion. The metal chimney B³ has a number of perforations, and located around said chimney is a ring B¹¹, having a corresponding number of perforations, which are adapted to register with the perforations on said chimney B³, and upon the movement of said ring over said perforations the draft of ascending air may be regulated.

The heated air and products of combustion passing from the chimney into the revolving hood B⁸ heat the same, so that the surrounding air of the apartment is heated by coming
 5 in contact with the outer heated surface of the revolving hood and is thrown off and diffused throughout the apartment, so that in this apparatus the revolving hood not only arrests the upward current of heated air and products
 10 of combustion, diffusing them throughout the apartment, but also heats the external air by direct contact with its heated surface and diffuses the same.

The heated air and products of combustion passing outwardly between the floats are thrown at a tangent from the hood and are diffused throughout the apartment to be heated, so that the hood is revolved and the apartment is heated by the said current of air.

20 The heated air and products of combustion discharge laterally from said hood, causing the hood to revolve by impact on the floats, and said discharge is accelerated by the revolution of said hood, owing to centrifugal force.

25 The object of regulating the draft by the metallic ring B¹¹ is to vary the speed of the revolving hood B⁸, and thereby regulate the temperature of the room without disturbing the flame of the burner which may at the time
 30 be in use for illuminating purposes. When the draft is open, the air flows in more freely, thereby accelerating the speed of the revolving hood, and when the draft is partially or entirely closed the speed of the revolving hood
 35 is lessened and the diffusion of the heated air and products of combustion becomes less perfect and part of the heated air and products of combustion goes to the ceiling and the lower part of the room becomes cooler.

40 I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

Having thus ascertained the nature of my
 45 invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the character specified, a source of heat for heating the air by
 50 direct contact, a support, and a hood closed at the top and open at the sides and pivoted on said support and consisting of a number of floats separated from each other at the
 55 sides to form lateral openings and located at an angle to the line of passage of the heated air and products of combustion and adapted to receive and intercept the heated air and products of combustion and to be revolved by
 60 the lateral discharge of the same against said

floats in passing through said openings and adapted by its revolution to accelerate the diffusion of the heated air and products of combustion throughout the apartment to be heated.

2. In an apparatus of the character specified, a source of heat for heating the air, a revolving hood for receiving the heated air and products of combustion and revolved thereby
 70 and adapted in its revolution to discharge and diffuse said heated air and products of combustion throughout the apartment to be heated, and means for controlling the speed of said hood by regulating the admission of air.

3. In an apparatus of the character specified, a source of heat for heating the air, a revolving hood for receiving the heated air and products of combustion and revolved thereby
 80 and adapted in its revolution to discharge and diffuse said heated air and products of combustion throughout the apartment to be heated, and means for deflecting the heated air and products of combustion from their upward course.

4. In an apparatus of the character specified, a source of heat for heating the air, a revolving hood for receiving the heated air and products of combustion and revolved thereby
 90 and adapted in its revolution to discharge and diffuse said heated air and products of combustion throughout the apartment to be heated, and a diaphragm located within said hood for deflecting the heated air and products of combustion from their upward course.

5. In an apparatus of the character specified, a source of heat for heating the air by
 95 direct contact, a support, and a hood closed at the top and open at the sides and pivoted on said support and consisting of a number of curved floats in contact at their upper ends
 100 and separated from each other at the sides to form lateral openings and located at an angle to the line of passage of the heated air and products of combustion and adapted to receive and intercept the heated air and products of combustion and to be revolved by the
 105 lateral discharge of the same against said floats in passing through said openings and adapted by its revolution to accelerate the diffusion of the heated air and products of
 110 combustion throughout the apartment to be heated.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 6th day of August, A. D. 1898.

LOUIS P. HAGER.

Witnesses:

O. G. HARLOW,
 E. F. PORTER.