

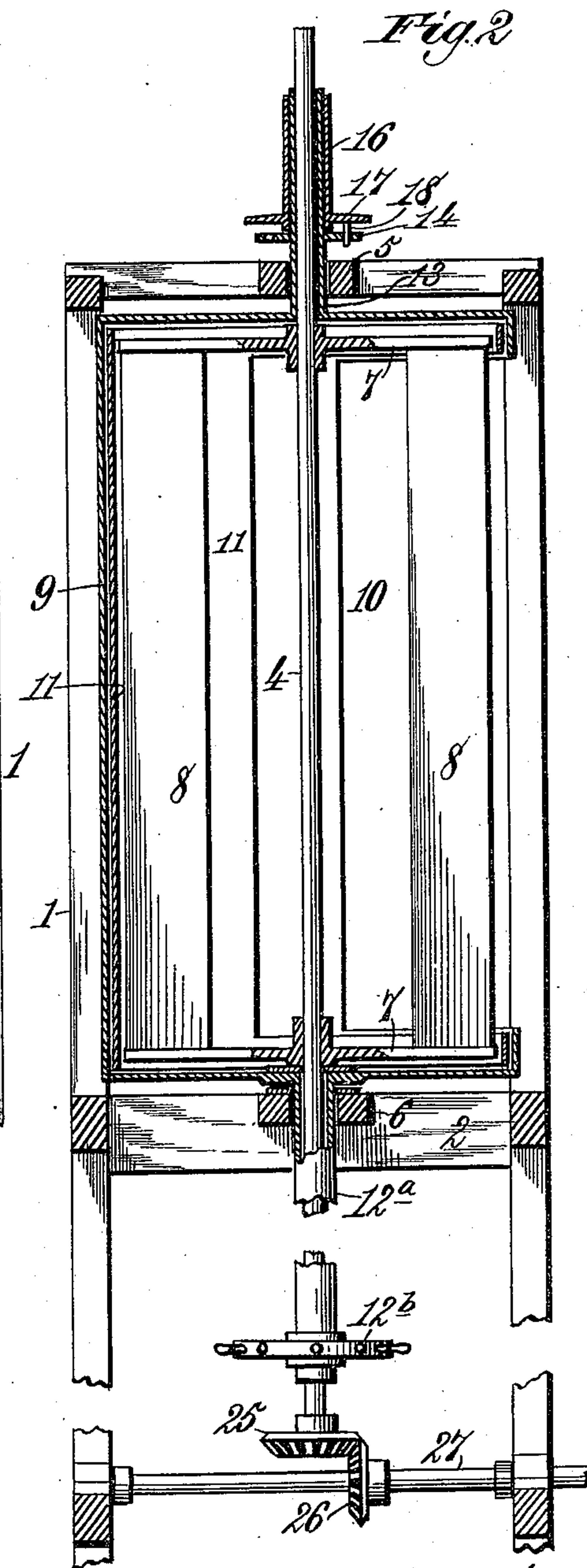
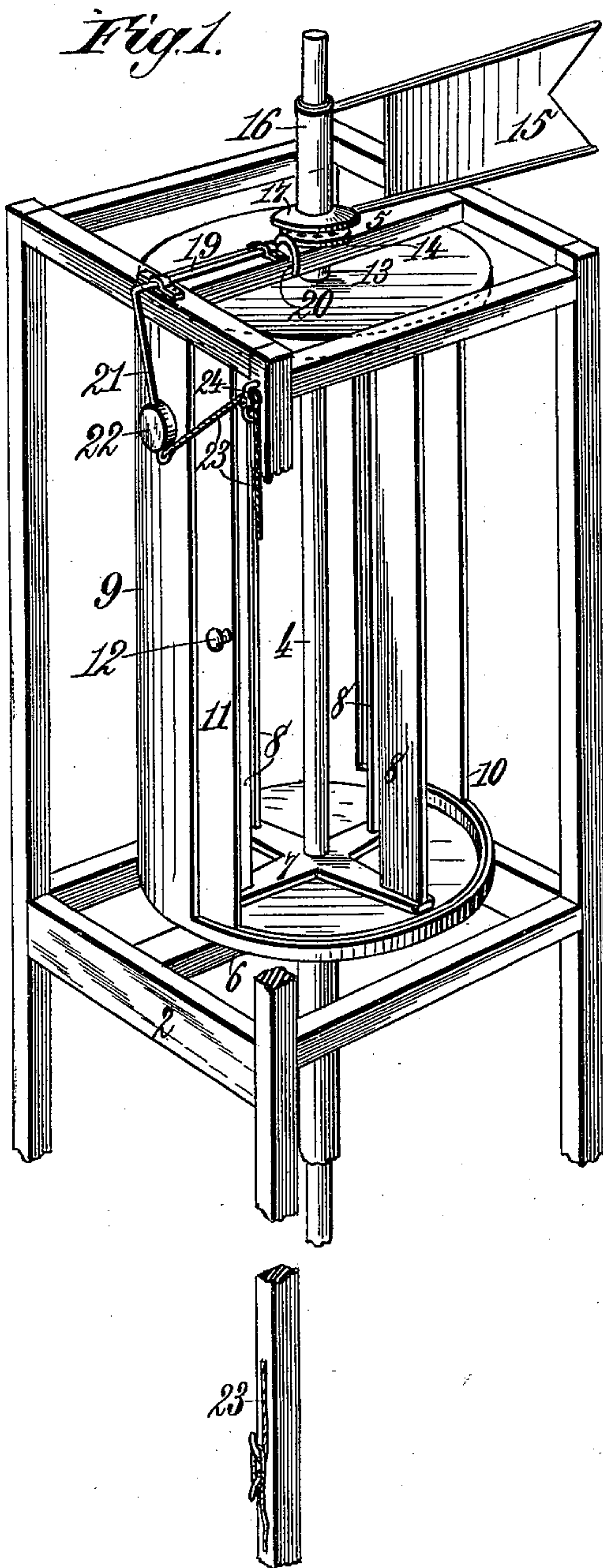
(No Model.)

2 Sheets—Sheet 1.

S. JOHNSON.  
WINDMILL.

No. 563,596.

Patented July 7, 1896.



Witnesses:  
Robert Corbett,  
J. H. Meyer.

Inventor:  
Silas Johnson.  
By H. L. Davis,

Atty

(No Model.)

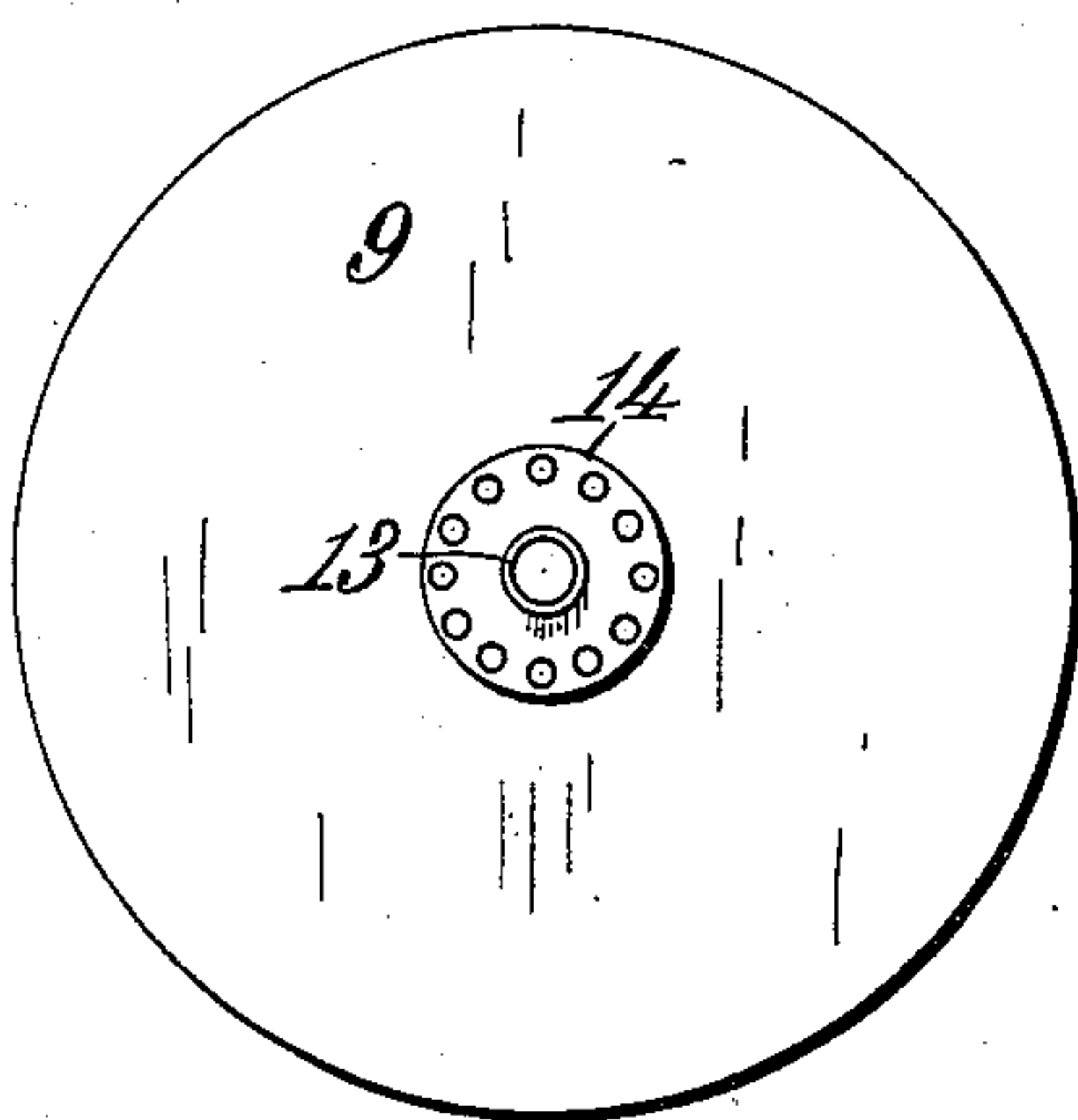
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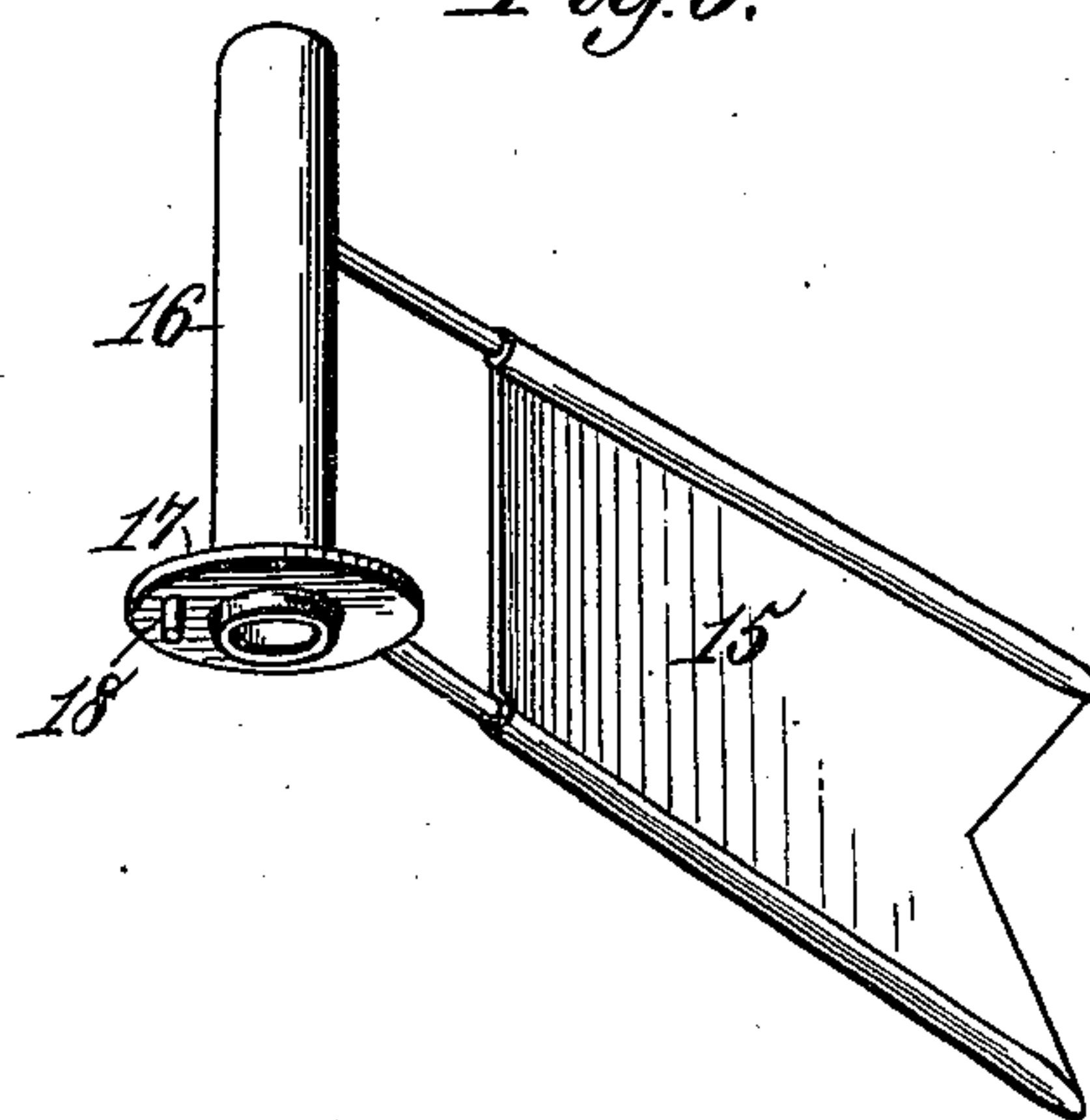
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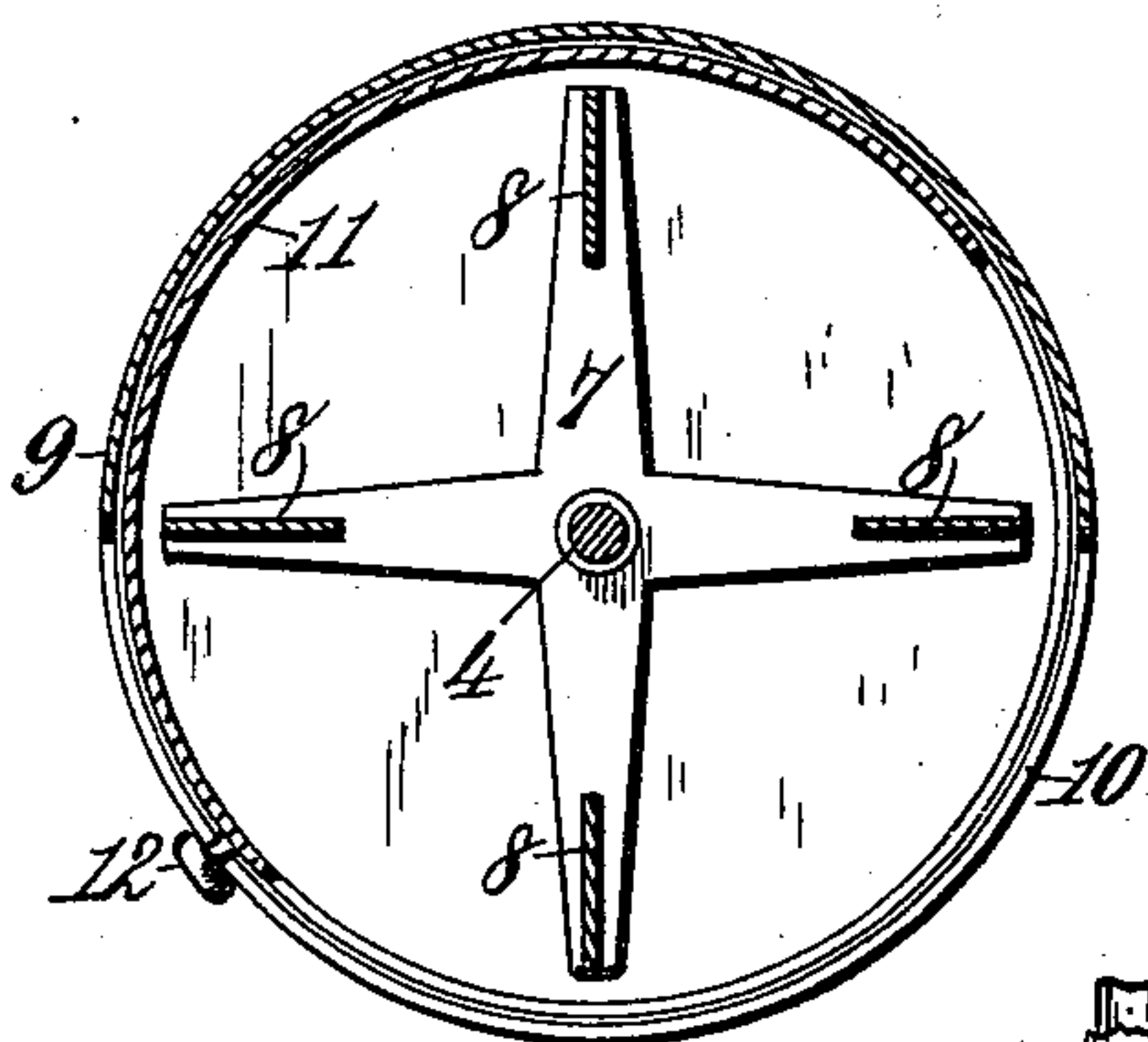
*Fig. 3.*



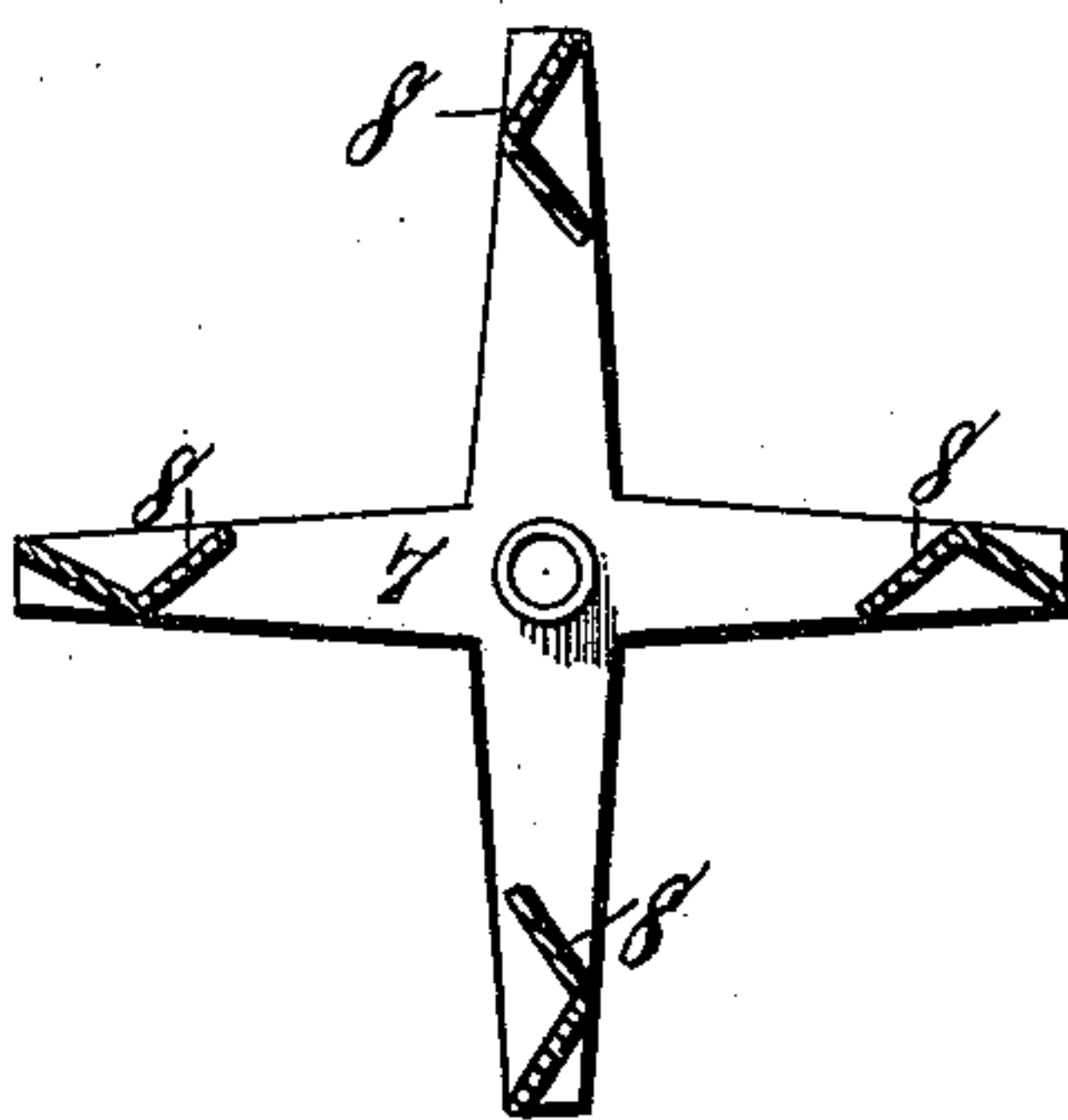
*Fig. 5.*



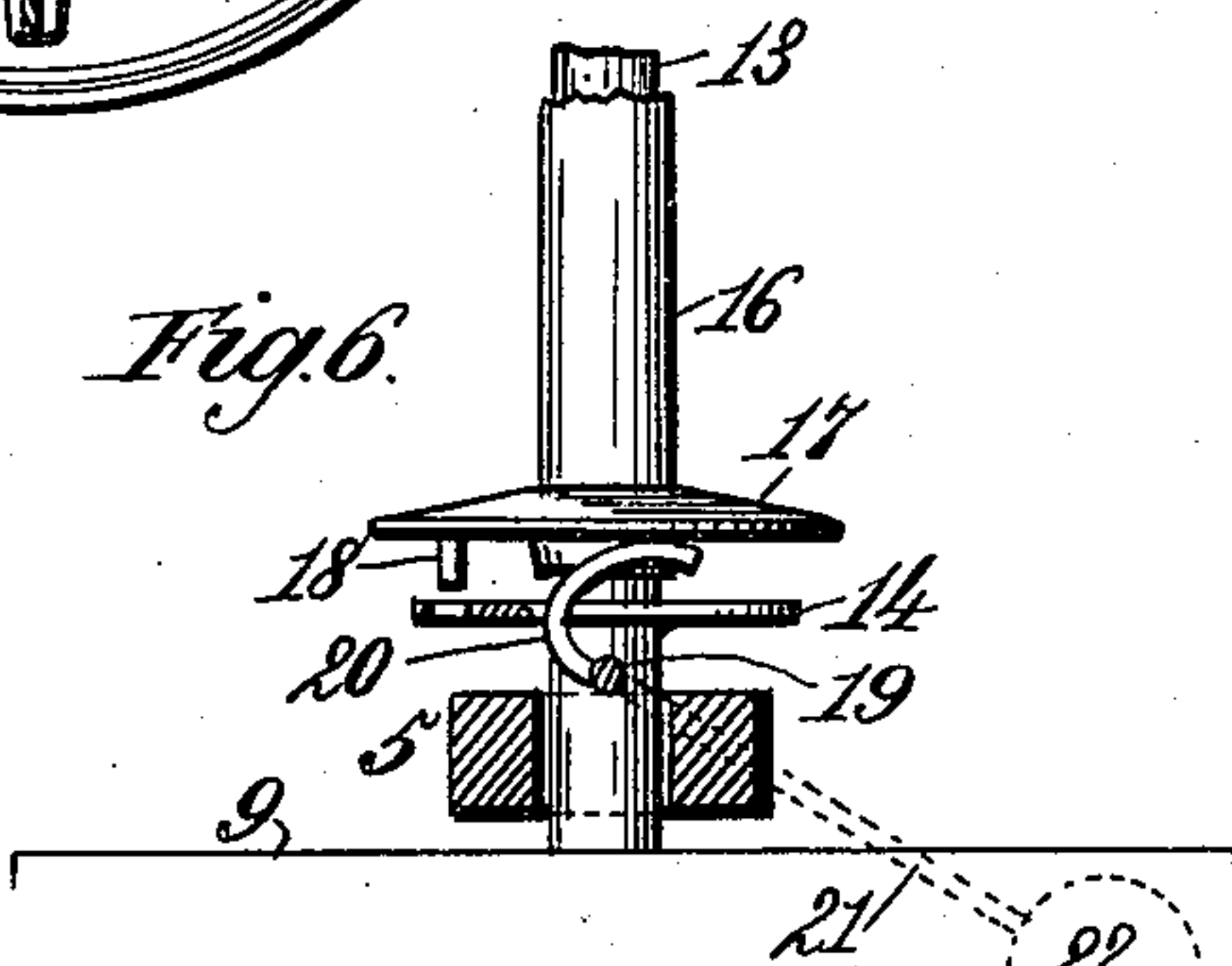
*Fig. 4.*



*Fig. 7.*



*Fig. 6.*



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By *H. L. Davis,*

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# UNITED STATES PATENT OFFICE.

SILAS JOHNSON, OF WILLOW LAKE, SOUTH DAKOTA.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 563,596, dated July 7, 1896.

Application filed February 3, 1896. Serial No. 577,906. (No model.)

*To all whom it may concern:*

Be it known that I, SILAS JOHNSON, a citizen of the United States of America, residing at Willow Lake, in the county of Clark and State of South Dakota, have invented a certain new, useful, and valuable Improvement in Windmills, of which the following is a full, clear, and exact description.

This invention relates to a new and improved windmill or motor, and has for its objects to provide an apparatus of this character which will be very simple in construction, accurate in operation, and comparatively inexpensive in its manufacture.

It is the purpose of my invention to so construct and arrange my windmill that it can be readily and easily geared up to operate various kinds of light machinery, such, for instance, as grindstones, turning-lathes, churns, shing-machines, and, in fact, any and all kinds of light-running machinery.

It is a further purpose of my invention to provide a windmill wherein the operating-blades are inclosed within a chamber or casing, so that they will be protected at all times from the natural elements; and, finally, it is the purpose of my invention to provide novel and simple mechanism for throwing the wind-blades into and out of gear, so as to start and stop the machinery to which it is connected at will.

To these ends my invention consists in the novel features of construction and new combination of parts hereinafter referred to, and more definitely pointed out in the claim which follows this specification.

In order to enable others to thoroughly understand and make and use my said invention, I will now proceed to describe the same in detail, reference being had for this purpose to the accompanying drawings, in which—

Figure 1 is a perspective view of my complete apparatus, the wind-wheel being shown within the casing. Fig. 2 is a vertical section of the same. Fig. 3 is a plan view of the casing. Fig. 4 is a horizontal section of the casing, sliding door, and wind-wheel. Fig. 5 is a view in perspective of the wind-vane and its supporting-sleeve. Fig. 6 is a detail sectional view of the coupling and mechanism for oper-

ating the coupling. Fig. 7 is a detail sectional view of a modified form of wind-vane blades.

Referring now to the drawings, the reference-numeral 1 designates any suitable form of supporting-frame, which may be made of wood or metal and braced and supported in any suitable manner, as, for instance, by the side pieces 2 and end pieces 3.

A vertical shaft 4 is journaled in suitable bearings 5 6, supported by the frame 1, and to this shaft is secured a wind-wheel 7, provided with a series of radiating blades 8, which may be straight, as shown in Fig. 1, or they may be of angular or other shape, as shown in detail in Fig. 4. With this latter construction of blades a greater surface is presented to the wind, and consequently more power is derived.

Surrounding and entirely inclosing the wind-wheel 7 is a casing or chamber 9, which may be of any shape and made out of any suitable material, as sheet metal, wood, or a framework with a canvas or similar covering. In one side of the casing or chamber is an opening 10, which extends from near the bottom of the same to near the top. Said opening may be of any desired area to suit the conditions required. Within the casing or chamber is a sliding door or cut-off 11, which is arranged to slide around within the casing and adapted also to partially or entirely close the opening 10, when desired. In rough weather or at any other time when it is not desired to have the wind-wheel operate it is simply necessary to close the opening 10 in the chamber or casing by sliding the door 11 in front of the same, which is provided with a knob or button 12 for this purpose, and the wind will thereby be cut off from the wind-wheel, and at the same time said wheel will be thoroughly protected from rain, snow, and the like.

A further important advantage gained by having the wind-wheel inclosed in a casing is that the wind, by being entrapped on entering the casing, will, owing to the continued inflow of additional wind, seek an outlet, and in so doing will have a continued action upon the blades of the wind-wheel until it has found its way out of the casing.



This is particularly so when the casing is cylindrical in form, in which case the opening and slide will be so arranged and adjusted that the wind will enter the same tangentially.

It is to be understood that the casing or cylinder is freely supported upon the frame 1, so that it has an independent movement with respect to the vertical shaft 4.

Secured to the underside of the casing and depending therefrom is a tube 12<sup>a</sup>, to the lower end of which is attached a hand-wheel 12<sup>b</sup>, so arranged that a person turning the same may adjust the position of the opening in the cylinder or casing, as desired, with respect to the wind. Instead of providing the tube 12<sup>a</sup> I may attach depending arms or rods to the under side of the casing and secure the hand-wheel to the lower ends of said arms. It should be understood that the wind-wheel shaft 4 extends upward through the tube 12<sup>a</sup>, but is not in any manner connected thereto.

To the top of the cylinder or casing is secured a sleeve 13, and surrounding said sleeve at a point below the top is a perforated annulus or ring 14, said sleeve and annulus or ring being arranged to turn with the casing or cylinder.

The reference-numeral 15 designates a wind-vane which is supported or carried by a sleeve 16, the lower portion of which is provided with a circular flange or ring 17, and projecting downward from the lower portion of this flange or ring is a pin 18, said pin being arranged to enter the perforations in the ring 14 when the sleeve 16 is placed over the sleeve 13, as shown in Figs. 1 and 2. By this construction the amount of wind entering the opening in the casing can be regulated and controlled by simply adjusting the wind-vane at various angles with relation to said opening. In order that this adjustment of the wind-vane may be made from the ground and without going to the location of the parts themselves, I have journaled a rocking lever 19 to the frame of the apparatus, said lever being substantially on a plane with the flange or ring of the sleeve 16 and provided at one end with a curved arm 20, which is of cam shape, and having its other end bent to form a depending arm 21, to the lower end of which is secured a weight 22, so that said arm will normally remain in a vertical position, which will accordingly keep the cam-arm out of engagement with the disk or ring 16. To the lower or weighted end of the arm 21 is secured a cord or chain 23, which passes up

over a suitable pulley or other support 24, and when it is desired to disconnect the pin 18 from the perforations in the disk or ring 13 it is simply necessary to pull down upon the cord or chain 23, which will rock the lever or rod 19 and cause the cam-arm 20 to engage upon the under side of the disk 16, thereby raising the same and disconnecting its pin 18 from the perforated disk 13, whereupon the wind-vane is allowed to ride free of the casing or chamber.

It is to be understood that the wind-vane can be adjusted to any position desired with respect to the opening in the casing, and that it can be so arranged and adjusted that the wind will have no effect upon the wind-wheel whatever, and in this manner the machinery operated by the wind-wheel can be stopped or started at will without closing the slide in the casing.

In order to transmit power from my improved windmill, it is simply necessary to secure a bevel or other gear-wheel 25 to the vertical shaft 4, and to this gear-wheel may be geared a similar gear-wheel 26, mounted upon a horizontal shaft 27, which may be the driving-shaft of the machine driven, or a transmitting-shaft. While I have here set forth that I secure bevel-gears to the vertical and horizontal shafts, I do not wish to be understood as limiting myself to such, as I may use any form of gearing desired.

Minor details in the construction of the parts of this apparatus may be made without departing from the spirit of my invention.

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

In a wind-motor, the combination with an upright supporting-frame, of a vertical cylinder rotatively supported upon said frame, a vertical shaft passing freely through the cylinder, a wind-wheel carried by the shaft within the cylinder, a perforated ring carried by the top of the cylinder, a wind-vane provided with a pin which enters one of the perforations in the ring whereby said wind-vane and cylinder are connected together, a rocking rod provided at one end with a cam-arm adapted to raise the wind-vane to free the pin from the perforated ring, a weight at the other end of said rod, and means for rocking the rod, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SILAS JOHNSON,

Witnesses:

H. A. WILCOX,  
F. T. RUMANN.