

No. 717,111.

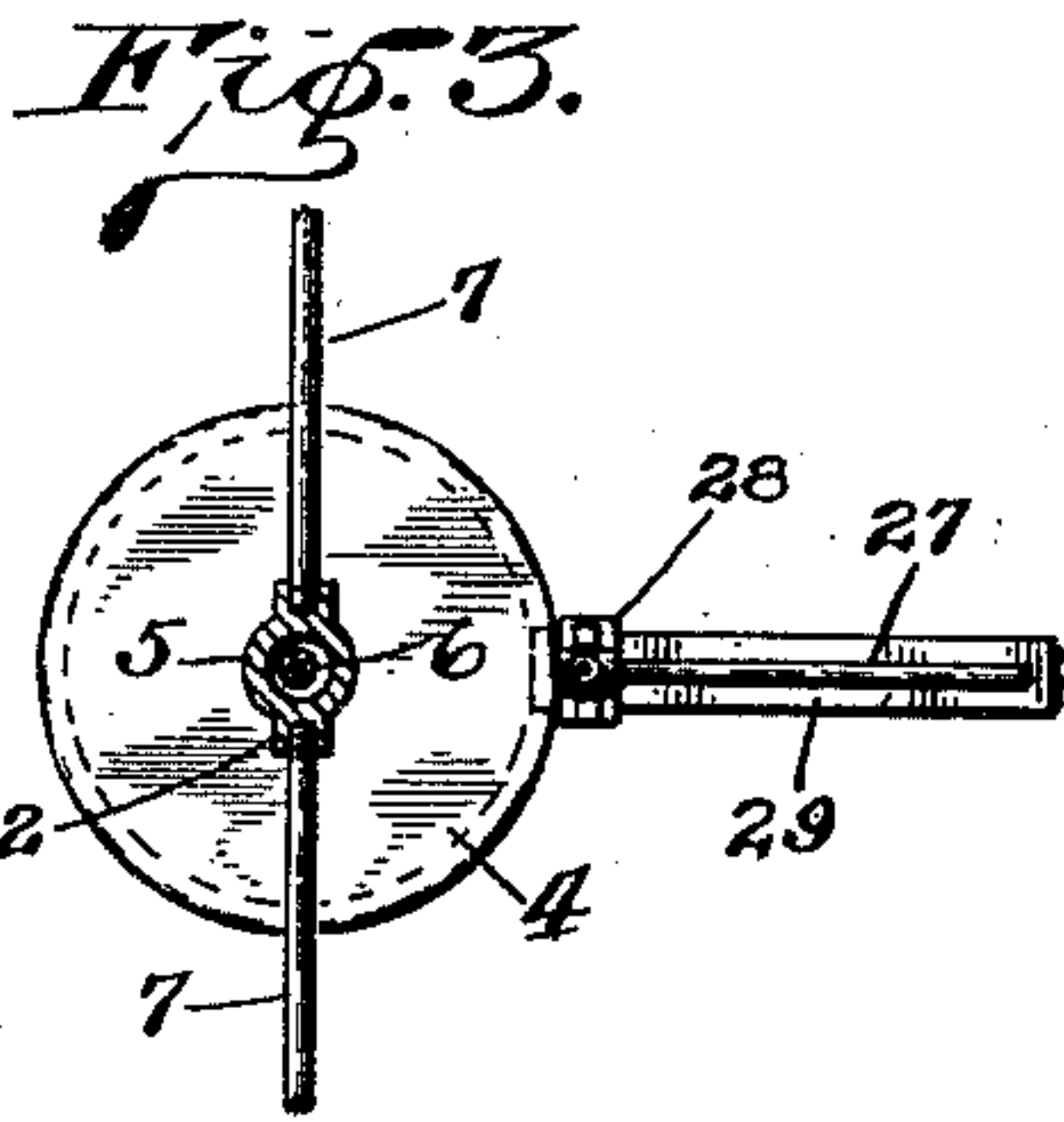
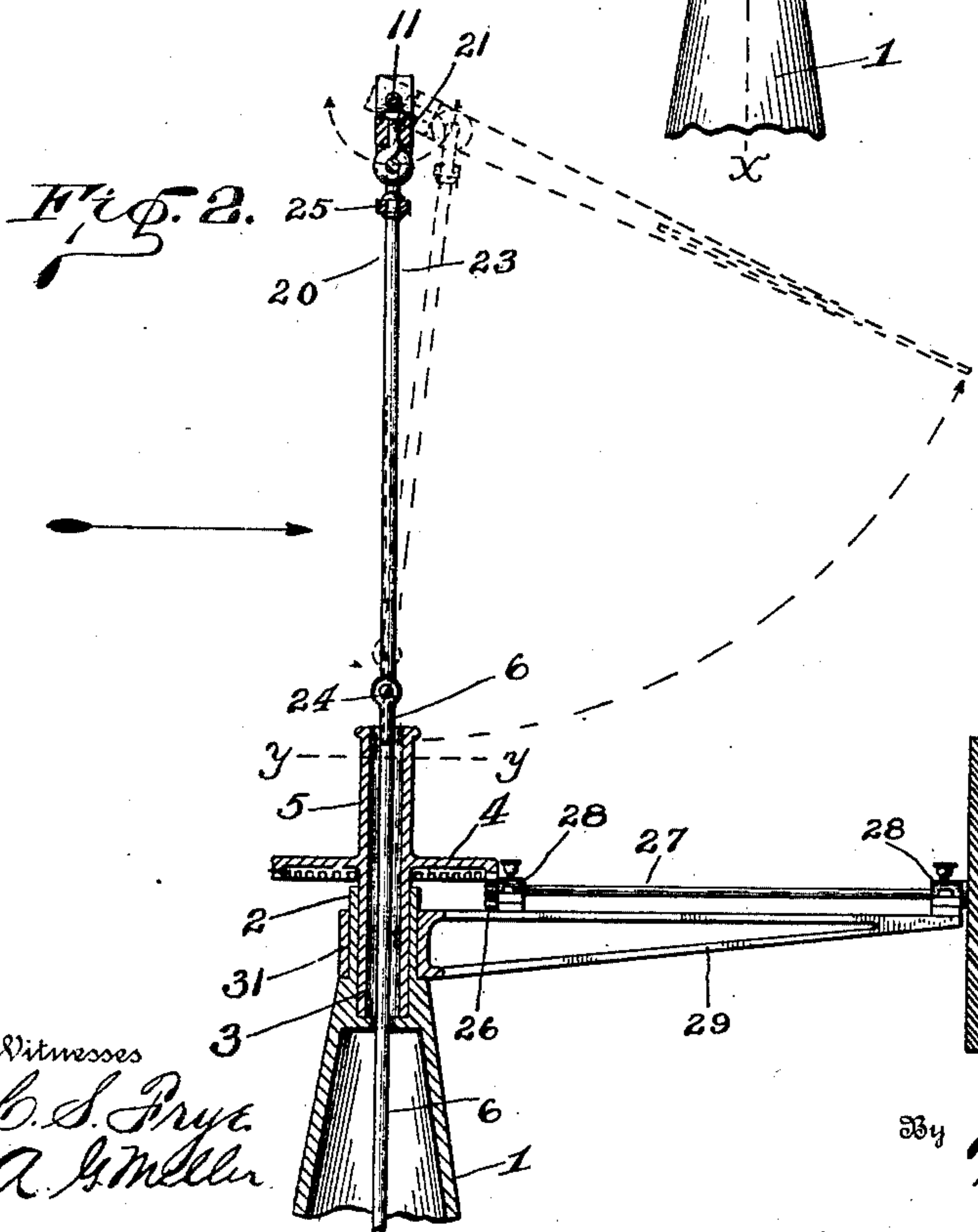
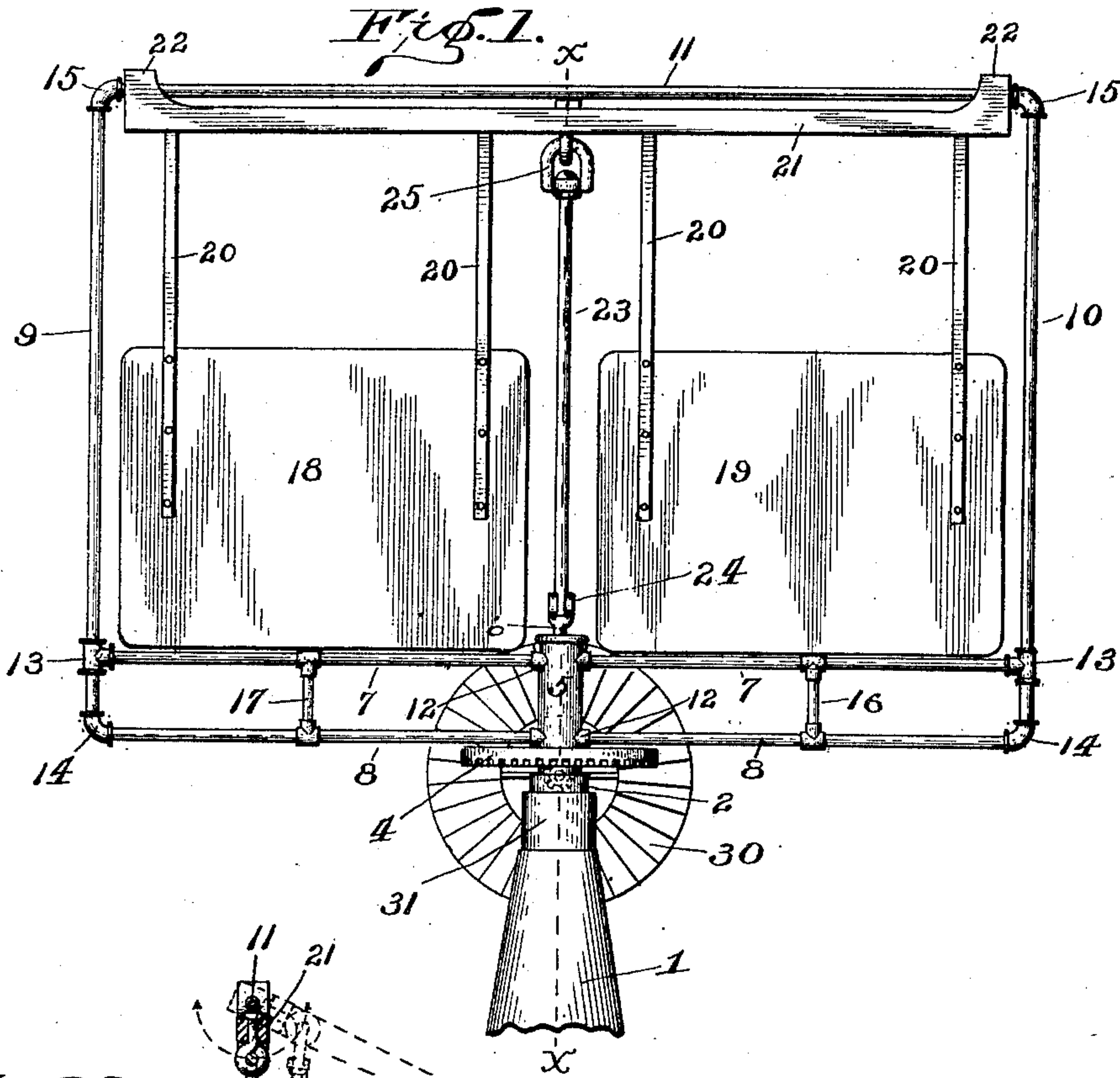
Patented Dec. 30, 1902.

C. MCGREGOR.

WIND ENGINE.

(Application filed Apr. 7, 1902.)

(No Model.)



Inventor _____

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UNITED STATES PATENT OFFICE.

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WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 717,111, dated December 30, 1902.

Application filed April 7, 1902. Serial No. 101,745. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MCGREGOR, a citizen of the United States, residing at Nashua, in the county of Hillsboro, State of New Hampshire, have invented certain new and useful Improvements in Wind-Engines; and I 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 appertains to make and use the same.

My invention relates to windmills; and my object is to provide a wind-motor of greatest possible power consistent with the employment of a minimum number of cooperating elements; and with this object in view my invention consists of certain novel features of combination and construction of parts, the preferred physical embodiment whereof will be set forth in the following specification, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my invention complete. Fig. 2 is a central vertical section of Fig. 1 on line xx , while Fig. 3 is a horizontal section of Fig. 2, taken on line yy .

The essential feature of my invention and the elements deemed necessary to illustrate a practical application thereof to use will each be designated by a reference-numeral, of which—

1 indicates the supporting-base or tower of the usual or any preferred form, designed to afford a suitable support for the parts of my wind-motor proper. Said base is provided with a suitable socket 2, tubular in form and open at its upper end, and thus adapted to receive the lower end 3 of the hub of the horizontally-disposed beveled gear 4, the upper end 5 of said hub being thus disposed in proper position to receive the pump-rod or piston 6, which extends loosely downward therethrough to the pump or other mechanism to be operated thereby. The upper end 5 of the hub is adapted for the additional purpose of affording a suitable support or seat for the carrying-frame, comprising in this instance the base members 7 and 8, the upright sections 9 and 10, and the top section 11, connecting the upper ends of said

uprights. It will be understood that this frame may be made in any preferred way and of any desired material, though it is thought best results will be attained by the use of suitable tubing, inasmuch as a greater degree of strength consistent with lightness will be possible. The inner ends of the members 7 and 8 may be rigidly and securely connected to the hub-section 5 by threading said ends into the seats 12, integrally formed with said hub, the outer ends of said members being connected to the uprights 9 and 10 by the T and angle couplings 13 and 14, respectively. In like manner the uprights 9 and 10 are connected to the top section by the angle-couplings 15. If deemed desirable, the members 7 and 8 may be reinforced by the connecting-links 16 and 17, as illustrated in Fig. 1. This carrying-frame or the equivalent thereof is thus securely mounted in its operative position, so that it will rotate or bodily turn upon its axis, which in the present case comprises the lower end 3 of the hub of the wheel 4, and desiring to utilize the rotation of the frame I suspend from the upper section or rod 11 a pair of swinging or reciprocating fans or wind-engaging blades 18 and 19. Said fans are operatively suspended in position by means of the rods or arms 20, which are rigidly connected to said fans and also rigidly joined at their upper ends to the rocking bar 21, which latter is properly suspended by means of the ears or brackets 22, connected to or forming an integral part of said bar. It will be observed that said ears are provided with apertures adapted to loosely receive the section 11 of the frame, as illustrated in Fig. 1. By this arrangement it will be seen that the bar 21 is adapted to swing freely upon the rod 11, and I utilize this rocking movement of said bar to actuate the piston or pump-rod 6 through the mediation of the link-section 23, which is pivotally connected to the pump-rod, as indicated by the numeral 24, while the upper end of the link is pivotally connected to the under side of the rocking bar 21, preferably by means of the swivel 25. By thus providing this swivel or universal joint intermediate the pump-rod and the rocking bar it is obvious that the carrying-frame may freely

rotate upon its axis without twisting said rod, as would be the case if a simple form of pivotal union was adopted.

By the combination of parts as above presented it will be clearly apparent that if a swivel or oscillating movement is imparted to the blades 18 and 19 the result will be a rocking movement of the bar 21 and incidentally a reciprocation of the piston or pump-rod, inasmuch as the lower side of said bar will describe the arc of a circle, thereby swinging the upper end of the link 23 alternately to the right and left in said arc. It therefore becomes desirable to provide positive means for directing the movement of the carrying-frame whereby said frame will be continuously rotated or turned upon its axis, and thereby alternately present each side of the blades to the wind, and thus insure that said blades will be regularly swung to and fro in a pendulum-like movement. With this object in view I provide the beveled gear 26, designed to mesh with the beveled gear 4, the said gear 26 being keyed upon the shaft 27, which latter is provided with suitable bearings 28, disposed upon the upper side of the vane-arm 29. To the outer end of the shaft 27 I rigidly connect the wind-wheel 30, while the inner end of said vane-arm 29 is provided with the collar 31, adapted to surround and rotate upon the tubular socket 2. It will therefore be clearly apparent by reference to the drawings that the wind-wheel 30 will act as a controlling-vane for my improved wind-motor, thereby positively insuring that the carrying-frame will always be disposed intermediate the vane and the wind. A further office of the vane or wind-wheel 30 is to continuously rotate the carrying-frame through the mediation of the shaft 27 and the gears 4 and 26, turning said frame upon its axis, and thereby alternately present the opposite sides of the blades 18 and 19 to the force of the wind, which will result in successively raising and lowering the pump-rod and operate the pump or other machinery with which said rod is connected. In Fig. 2 the direction of the wind is designated by an arrow and the swinging blades shown outwardly extended by dotted lines, the corresponding position and accessories also being indicated in said manner. The arc of travel of the pivot-point of the bar 21 and the link 23 is also designated in Fig. 2 by a dotted line, and it will be observed that a positive alternate lifting and lowering of the piston follows.

It will be obvious that any suitable form of device or devices may be placed in cooperation with certain parts of the mechanism herein illustrated and described, whereby said mechanism may be thrown in or out of gear at the pleasure of the operator, and since such stopping mechanism may be of the usual or any preferred construction I deem it unnecessary for the purpose of this application to particularize with reference thereto.

While it is the purpose of this specification to set forth the preferred combination and construction of the elements deemed necessary in carrying my invention into practical use, I desire to secure such possible substitutes and equivalents as fairly fall within the scope of my invention.

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

1. In a wind-motor a rotating frame; a suitable support therefor; wind-actuated means to rotate the frame continuously; swinging blades carried by said frame; a pump-rod and vertical means intermediate said blades and rod adapted to utilize the movement of the blades as set forth.

2. In a wind-motor a rotating frame; a suitable support therefor; oscillating blades carried by said frame; a pump-rod; means intermediate said blades and rod adapted to utilize the movement of the former and additional means to continuously rotate said frame whereby each side of the blades will be alternately presented to the wind as and for the purpose set forth.

3. In a wind-motor a frame having swinging wind-engaging blades; a pump-rod and means to operatively connect said rod with said blades; a supporting-axis for said frame; means controlled by the wind to continuously turn said frame on its axis all substantially as and for the purpose set forth.

4. In a wind-motor a carrying-frame; a rocking bar carried by said frame; oscillating blades connected to said bar; means independent of the blades to successively present each side of said frame to the wind and additional means to utilize the incident swinging of said blades as set forth.

5. In a wind-motor a suitable carrying-frame; a supporting-axis therefor; means to continuously rotate the frame on said axis, in combination with a rocking bar carried by the frame and operatively connected to the pump-rod, and wind-engaging blades carried by said bar adapted to move it back and forth and thereby reciprocate the pump-rod as set forth.

6. In a wind-motor a frame adapted to rotate in a horizontal plane; a rocking bar carried by said frame; a pump-rod connected to said bar; a blade or blades rigidly secured to said bar and adapted to rock or swing therewith and means comprising a vane-arm and a wind-wheel carried by the end thereof adapted to continuously turn said frame upon its axis and thereby alternately present each side of the blade to the wind and continuously rock said bar and operate the pump-rod as set forth.

7. In a wind-motor a carrying-frame having a depending tubular journal; a suitable support having a socket adapted to receive said journal; swinging blades carried by said frame and means to continuously turn the frame and thereby insure that the wind will

swing said blades continuously back and forth and thereby operate the pump-rod with which said blades are operatively connected as set forth.

5 8. In a wind-motor, a suitable support, a tubular frame carrying swinging blades, and means independent of the blades to control the position of the frame whereby the blades are repeatedly brought into operative relation to the wind as set forth.

10 9. In a wind-motor, a suitable support, a tubular frame carrying a rocker-arm provided with swinging blades and means independent of the blades to control the frame
15 whereby the blades will be repeatedly brought into operative relation to the wind, as set forth.

10. In a wind-motor, a suitable support, a frame carrying a rocker-arm provided with

swinging blades and a swiveled link-section 20 connecting said arm and a pump-rod, and means independent of the blades by which the blades are repeatedly brought into operative relation to the wind as set forth.

11. In a wind-motor, a suitable support; a 25 frame having a rocker-arm provided with swinging blades, a pump-rod and suitable connection between said arm and pump-rod and means independent of the blades by which the blades are repeatedly brought into 30 operative relation to the wind as set forth.

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

CHARLES MCGREGOR.

Witnesses:

EDWARD H. WASON,
THOMAS F. MORAN.