

2 Sheets—Sheet 1.

No. 464,364.

Patented Dec. 1, 1891.

Fig. 1.

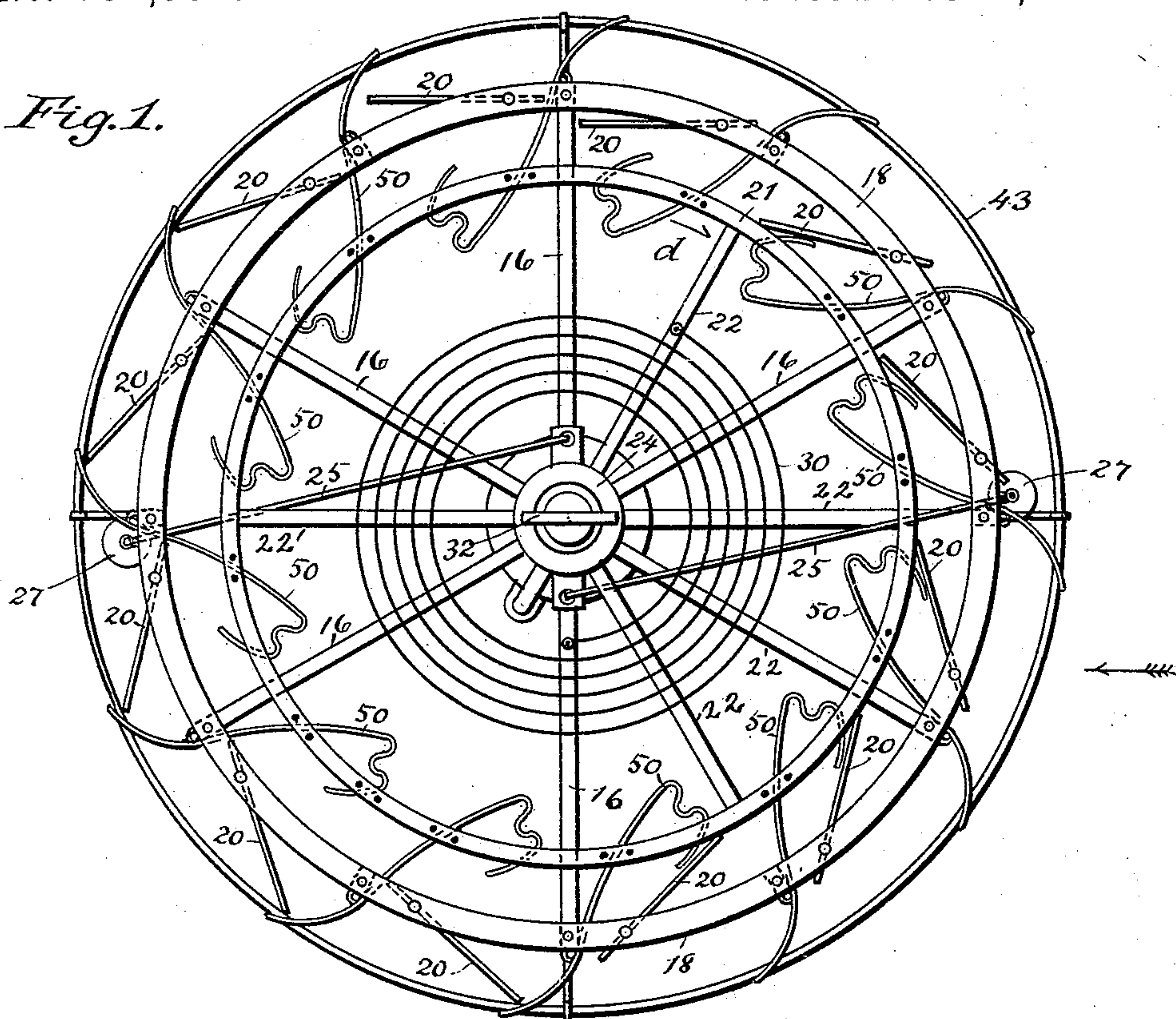
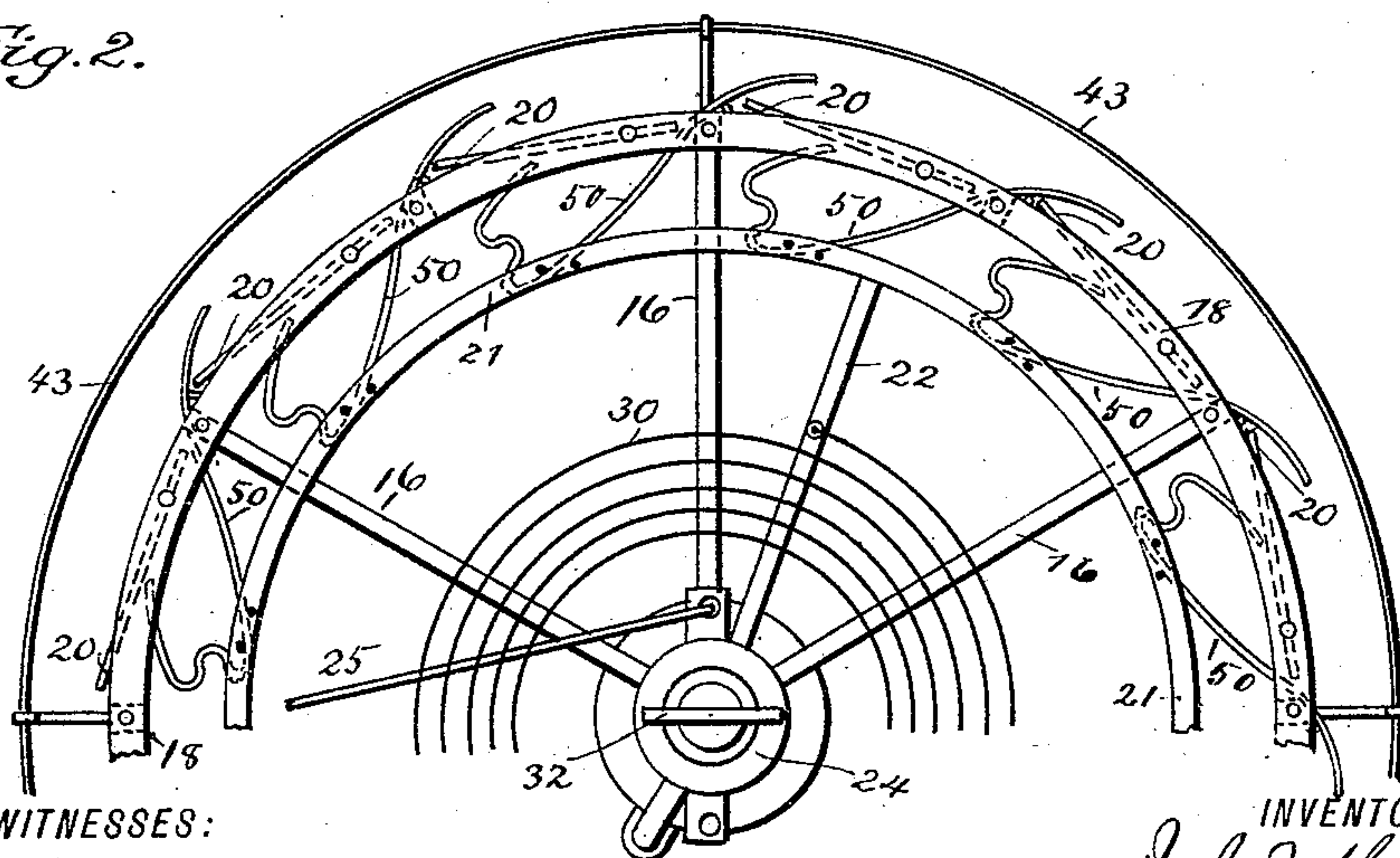


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

I. A. JEFFERSON.
WIND ENGINE.

No. 464,364.

Patented Dec. 1, 1891.

Fig. 3.

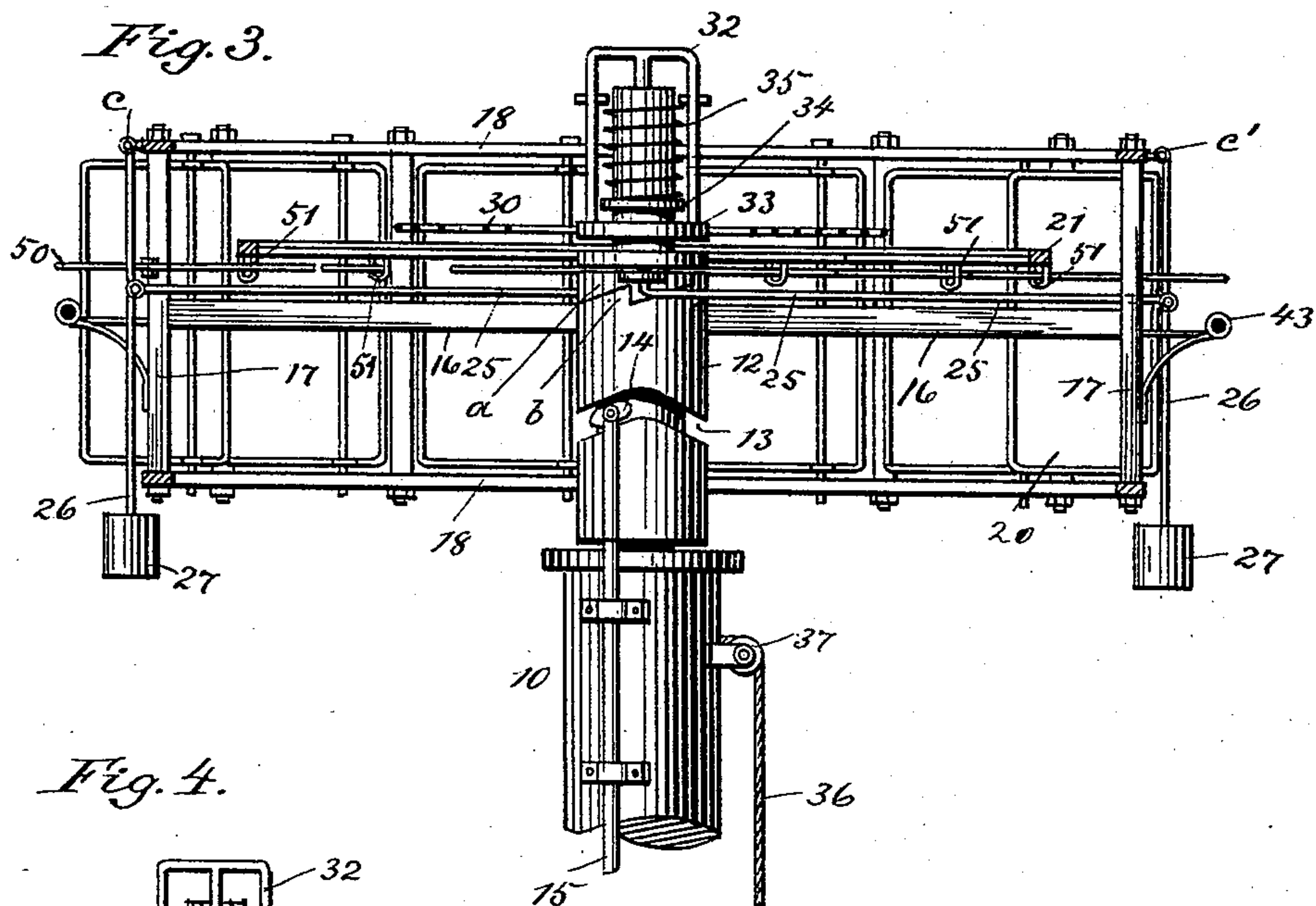


Fig. 4.

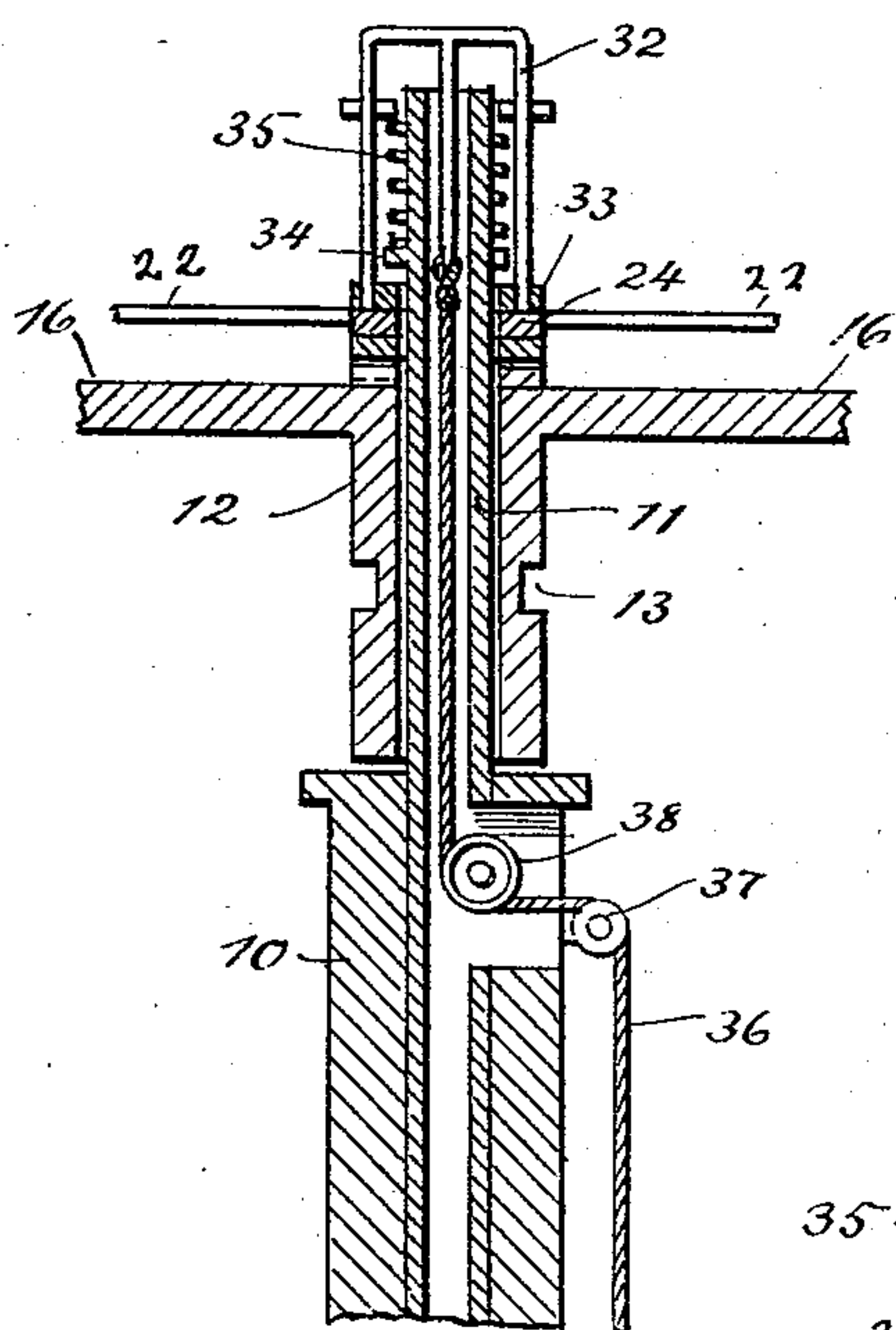
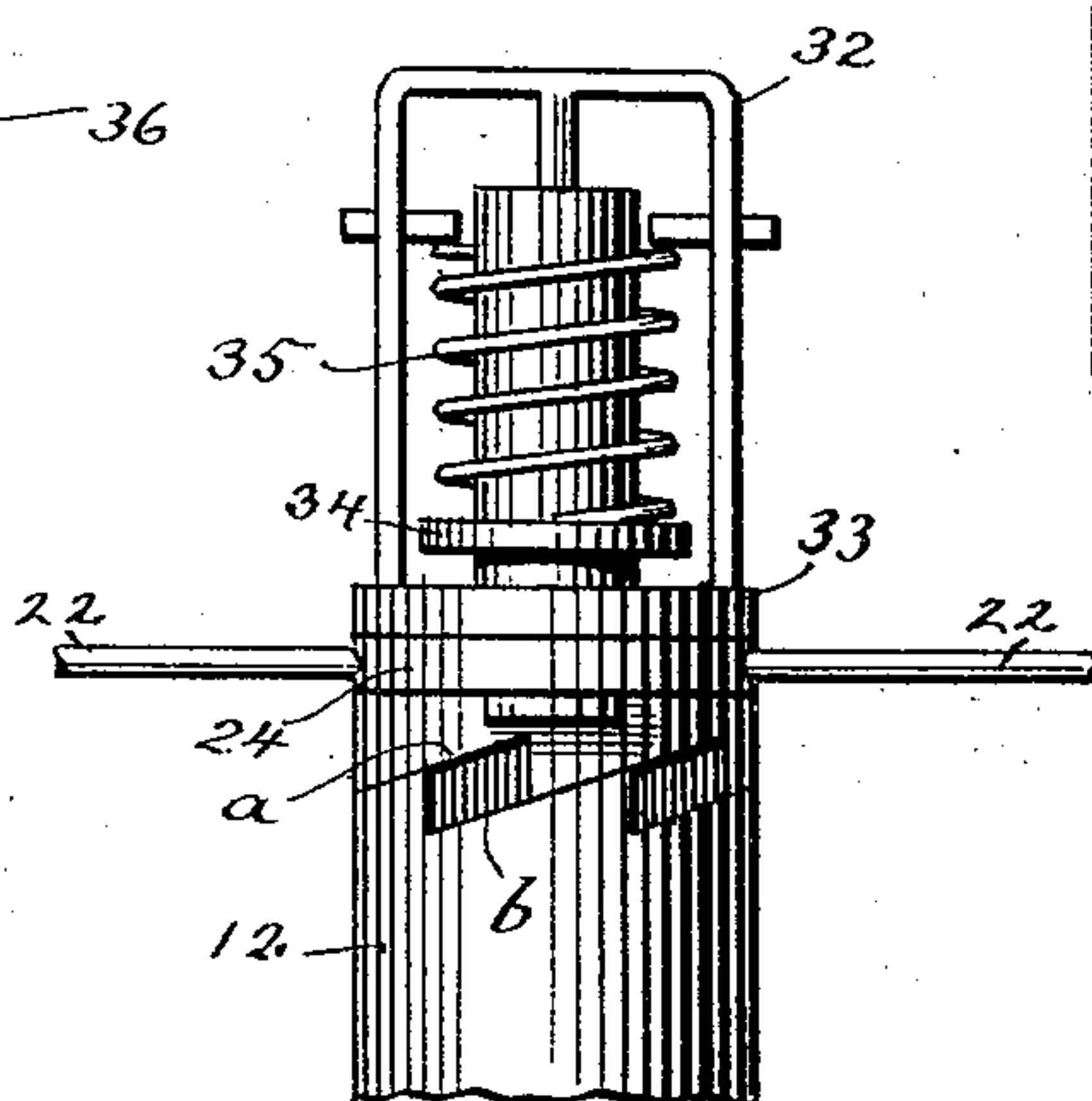


Fig. 5.



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UNITED STATES PATENT OFFICE.

IRA A. JEFFERSON, OF PARK CITY, UTAH TERRITORY.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 464,364, dated December 1, 1891.

Application filed January 19, 1891. Serial No. 378,265. (No model.)

To all whom it may concern:

Be it known that I, IRA ALLEN JEFFERSON, of Park City, in the county of Summit and Territory of Utah, have invented a new and Improved Wind-Engine, of which the following is a full, clear, and exact description.

This invention relates to wind-engines, or, as they are commonly termed, "windmills," the object of the invention being to provide an engine or mill that shall be especially adapted for use in prairie regions or other places where sudden changes of the air-currents prevail.

To the end above named the invention consists of certain novel constructions, arrangements, and combinations of elements, which will be hereinafter described, and specifically pointed out in the claims.

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

Figure 1 is a plan view of my improved wind-engine, the parts being represented as they would appear if the wind were light and were moving in the direction of the arrow shown in connection with the figure. Fig. 2 is a similar view, the parts, however, being represented as they appear when a strong wind prevails. Fig. 3 is a sectional elevation of the wind engine or mill. Fig. 4 is a sectional elevation of the central section of the mill, and Fig. 5 is an enlarged detail view of the regulating attachment.

In the drawings, 10 represents a post or standard, which is provided with an upwardly-extending tube or pipe 11, upon which there is mounted a sleeve or spider 12, that is formed with a cam-groove 13, in which there rides a slide 14, to which slide there is secured a connecting-rod 15, which transmits the power. The sleeve or spider 12 carries a number of radial arms 16, to the ends of which arms there are secured vertical strips 17, that carry hoops 18. The sails 20 are pivotally supported between the hoops 18, and their inward movement is limited by a hoop 21, carried by spokes 22, that extend radially from a hub 24, the lower edge of said hub being formed with a series of inclines *a*, which are complementary to inclines *b*, that are formed at the upper end

of the sleeve 12. To the hub 24 I connect rods 25, that are in turn pivotally connected to rods 26, which carry weights 27, the rods 26 being in turn pivotally connected at *c c'* to the upper hoop 18.

In connection with the parts described I arrange a heavy spiral spring 30, one end of said spring being connected to one of the main arms or spokes 16, while the other end of the spring is connected to one of the spokes which support the hoop 21, the tendency of the spring being to throw the parts to the position in which they are shown in Fig. 1—that is, to throw the hoop 21 in the direction of the arrow shown at *d*.

About the upper portion of the tube 11 I mount a cage 32, which carries a ring 33, said ring being normally held against a stop-ring 34 by a spiral spring 35. To the cage 32 there is connected a cord or rope 36, which extends about sheaves 37 and 38 to a lever 39, that is mounted at one edge of a tank 40, the long arm of the lever 39, carrying a float 41, which, when the water within the tank has reached the desired height, will act to throw the lever 39 as indicated by its arrow, and as the lever 39 is so moved the cage will be drawn down, this movement of the cage being designed for a purpose which will be hereinafter explained.

In order that the fans or sails 20 may be controlled and act to bring about a certain speed of revolution irrespective of the strength of the wind, I provide fingers 50, that are pivotally mounted upon rods carried by the hoops 18, the inner ends of these fingers passing through staples 51, that are carried by the hoop 21. Beyond the hoops 18 I arrange an outer hoop 43. If the wind is light, the hoops 43 and 21 serve to limit the play of the sails or fans, as is indicated, when the parts are affected, as represented in Fig. 1; but if the wind be strong, so as to bring about too rapid a revolution of the wheel, the governor-weights 27 will fly outward, and in so flying outward will draw upon the rods 25, and these rods will turn the hub 24 and cause such hub to rise until it bears against the under face of the ring 33, the frictional contact of the hub and ring tending to check the travel of the hoop 21, and consequently the hoops 18 will travel faster than the hoop 21 for an instant, and the relative position of the parts will be

as represented in Fig. 2, and when the parts are so relatively located the fingers 50 will act to hold the sails or fans in a position such that they will be at all times practically tangent to the hoops 18.

If the engine is used for pumping and sufficient water has been pumped into the tank 40, the rising of the float will draw down the ring 33, and the same checking of the movement of the hoop 21 will be brought about.

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

1. In a wind-engine, the combination, with the sail-carrying frame, of pivotally-mounted regulating-fingers, a hoop that engages said fingers, a spring arranged in connection with the hoop, and a governor by which the motion of the hoop is retarded, substantially as described.

2. In a wind-engine, the combination, with a sleeve, of hoops 18, carried thereby, sails carried by the hoops, fingers supported by the hoops, a hub, an inner hoop 21, carried by the hub, a spring 30, arranged in connection therewith and with the hoops 18, inclines *a* and *b* on the hub and sleeve, respectively, and a governing attachment connected with the hub, substantially as described.

3. In a windmill, the combination, with the slide 14, formed with inclines *b* and carrying hoops 18, of fans or sails carried by the said hoops, fingers 50, also supported by the hoops, a hub 24, having inclines *a*, which rest upon the inclines *b*, a hoop 21, carried thereby, a spring 30, arranged as described, rods 25, connected to the hub 24, and lever-arms to which the rods are connected, substantially as described.

4. In a windmill, the combination, with the slide 12, formed with inclines *b* and carrying

hoops 18, of fans or sails carried by the said hoops, fingers 50, also supported by the hoops, a hub 24, having inclines which rest upon the inclines *b*, a hoop 21, carried thereby, a spring 30, arranged as described, a cage 32, a spring arranged in connection therewith, a ring 33, carried thereby, a lever connected to the cage, and a float arranged in connection with the lever, substantially as described.

5. In a wind-engine, the combination of the sleeve 12, provided with the spokes 16, united to the standards 17, with the upper and lower hoops 18, the outer hoop 43, and the braces united to the standards 17, whereby compactness and portability are obtained, as set forth.

6. In a wind-engine, the combination, with the sleeve 12, provided with the inclines *b*, and sails 20, carried by the sleeve, of the hub 24, provided with the inclines *a*, a governor connected to the hub, and a friction-ring above the hub, substantially as and for the purpose set forth.

7. In a wind-engine, the combination, with the sleeve 12, provided with the inclines *b*, and the sails 20, carried by the sleeve, of the hub 24, provided with the inclines *a*, the pivoted rods 26, connected to the hub, the weights on the rods, and a friction-ring above the hub, substantially as and for the purpose set forth.

8. In a wind-engine, the combination, with two main frames and sails pivoted to one of the said frames, of an inner frame and fingers pivotally mounted on one of the main frames and connected to the inner frame and adapted to bear against and control the sails, substantially as and for the purpose set forth.

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Witnesses:

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JOHN SHIELDS.