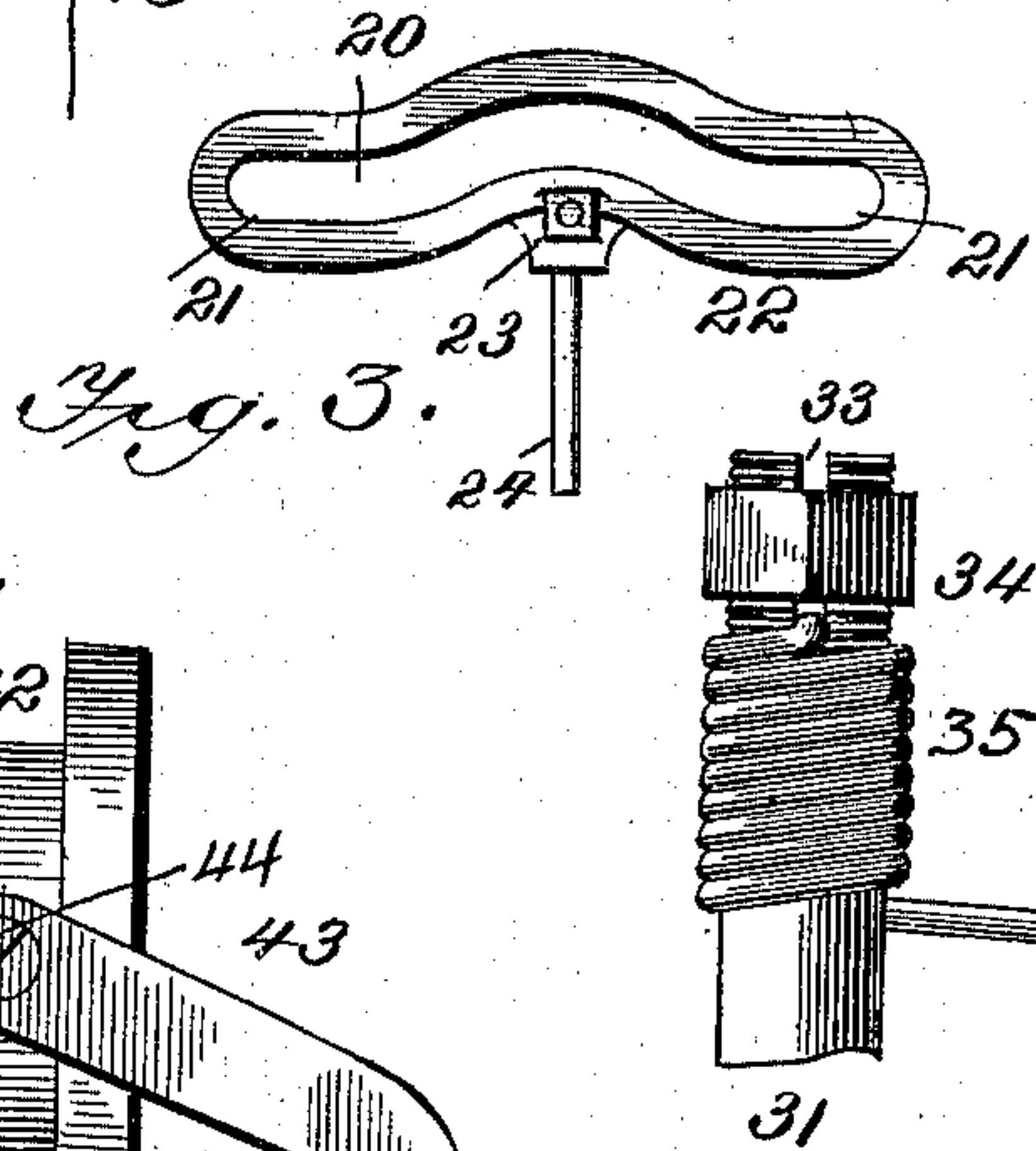
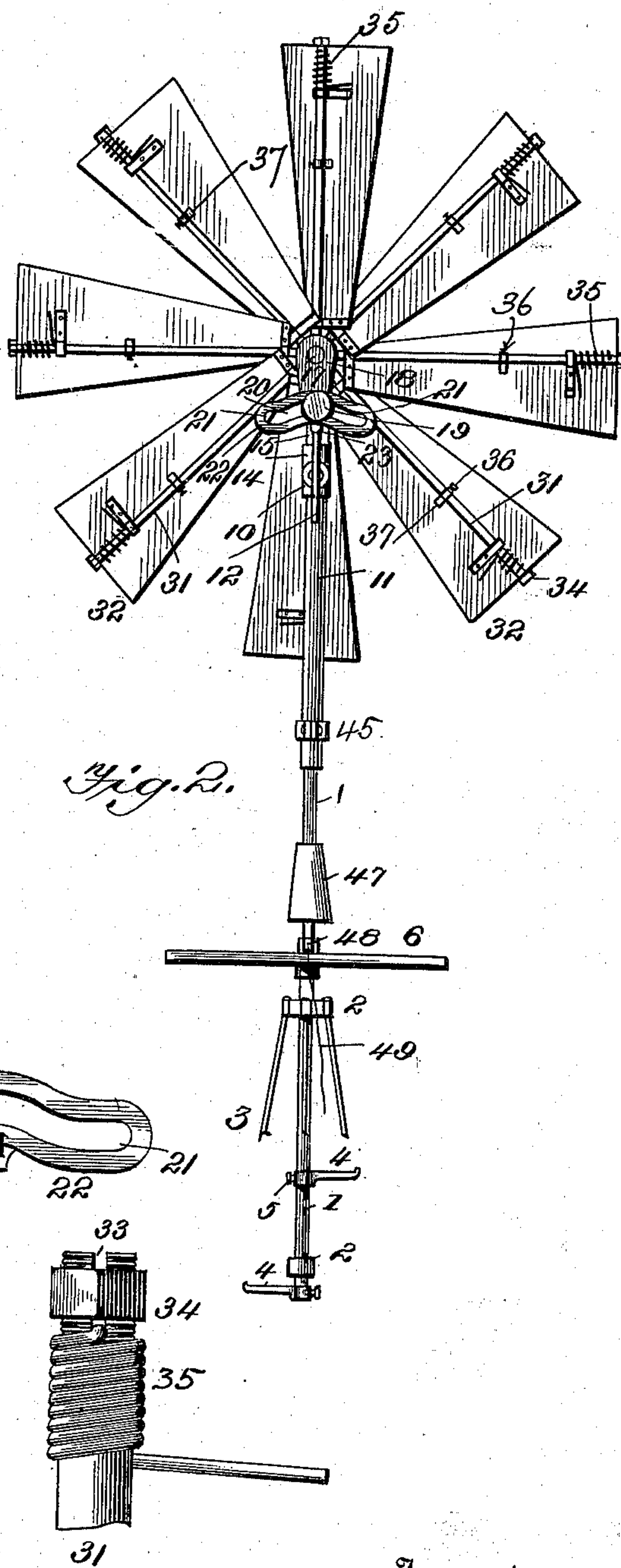
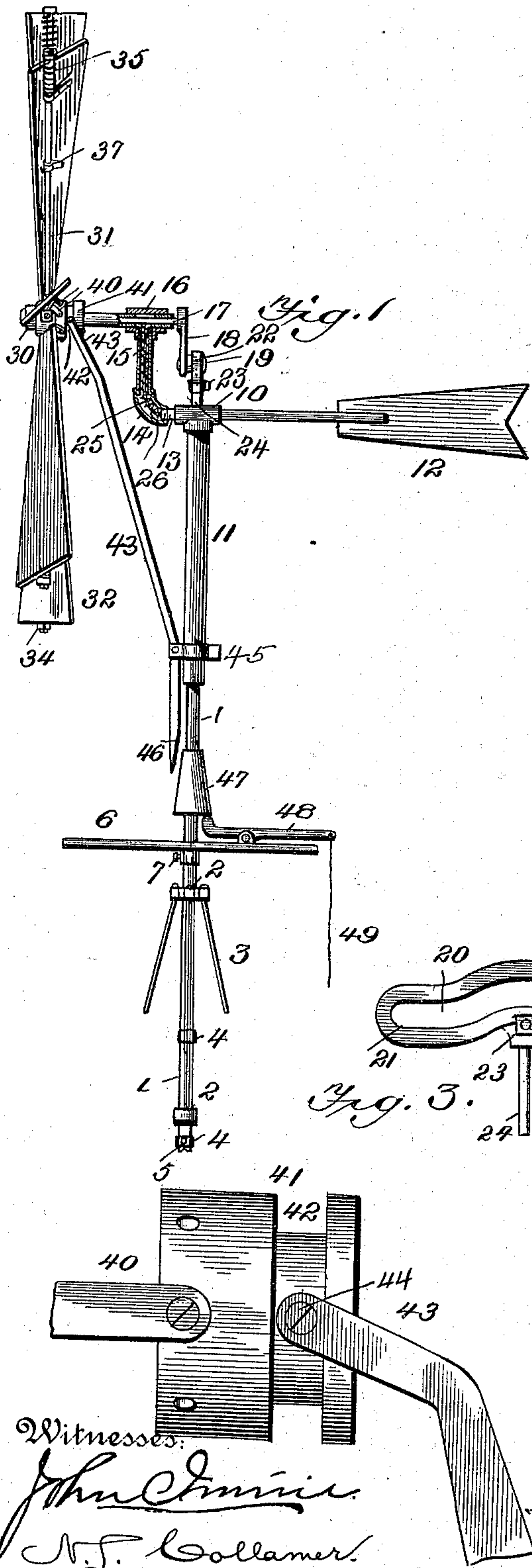


(No Model.)

F. J. BURUCKER.  
WINDMILL.

No. 562,374.

Patented June 23, 1896.



Witnesses:  
*John Miller*  
*N. L. Collamer*

Inventor:  
*Frederick J. Burucker*  
by *Louis Feiser*  
Attorney.



# UNITED STATES PATENT OFFICE.

FREDERICK JOHN BURUCKER, OF ST. PAUL, MINNESOTA.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 562,374, dated June 23, 1896.

Application filed February 3, 1896. Serial No. 577,904. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK JOHN BURUCKER, a citizen of the United States, residing in St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

This invention relates to pneumatics, and more especially to that class of devices thereunder which are known as "windmills;" and the object of the same is to provide certain improvements in machines of this character.

To this end the invention consists in certain improved details of construction, all as hereinafter more fully described and claimed, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of this mill complete, partly in section to show certain details. Fig. 2 is a rear elevation illustrating more fully the construction of the wings. Fig. 3 is a considerably-enlarged detail view of the casing at the upper end of the pump-rod and of the outer end of one of the radial arms of the wheel.

Referring to said drawings, the numeral 1 designates an upright support, as of gas-pipe or other suitable pipe, the lower section being seated in a post rising from the ground or mounted on the apex of the roof of some outbuilding, and the other sections of which are connected thereto by couplings 2, from each of which three or more brace-wires 3 are lead outwardly and connected to some fixed object, so as to prevent vibration of this support. At suitable points on the pipe are clamped steps 4 by means of set-screws 5 and by which an operator can mount to the top when the mill needs attention or repair; and just beneath the head of the mill is a platform 6, connected to the upright by set-screws 7, upon which the operator may stand when making such repairs. Said upright is of any desired height, and can be made higher or lower by inserting or removing sections of the pipe. The latter being hollow permits the passage of the pump-rod from the mill-head downward to the pump, from whose upper end the support may rise, or which pump may be located inside the barn or other building on whose roof the whole is mounted.

The head of the mill consists of a T-coup-

ling 10, resting on the upper end of the support and into whose lower opening is screwed or otherwise fastened a long spindle 11, consisting of a piece of tubing whose interior diameter is of a size to fit loosely around the exterior of the upright, so that it may turn easily thereon. The tail 12 is secured fast in the rear end of the T-coupling 10; and in its front end is secured rigidly a solid plug 13. To the forward end of the latter is secured an elbow 14, from whose outer end rises a short piece of pipe 15, whose upper end in turn carries a T-coupling 16, through which is journaled the main shaft 17. The latter carries at its forward end the wheel described below, and at its rear end a crank 18, whose crank-pin 19 enters an upwardly-curved slot 20, having short horizontal extremes 21—all formed in a casting 22, secured by set-nuts 23 to the upper end of the pump-rod 24, which passes down through the support 1 and is connected with the pump or other machinery. (Not shown.)

It is well known that when most of the windmills in the market today run at a little over their ordinary speed the vacuum that is created beneath the piston in the pump-cylinder will act as a spring or will produce suction tending to draw the pump-rod downward, which thus makes the mill run faster and faster; but by means of this curved slot 20 in the casting 22 as the crank-pin 19 passes over the upper end of its stroke the pump-rod and hence the piston are permitted to stand at rest for an instant at the upper end of its stroke, and this gives the cylinder time to fill with water, which adds to the volume being pumped, prevents the acceleration of the movement of the mill, and deadens what is known as the "beat" of the pump-valve.

Within the short piece of pipe 15 is mounted a piece of candle-wicking 25, that is surrounded by a coiled spring 26, bearing at its lower end against the plug 13 and supporting the upper end of the wick beneath the under side of the main shaft 17, and the pipe 15 being filled with lubricating-oil and graphite the lubricant is constantly fed to the main shaft, which rotates within the T-head 16, and hence the same is automatically oiled. The long spindle 11, turning around the upright, will need oiling but once in long periods,



as it turns only slightly and affords a strong and firm bearing.

To the front end of the main shaft 17 is rigidly secured a hub 30, from which radiate  
 5 eight (more or less) half-inch pipes or rods 31, that may be screwed or otherwise fastened to said hub; and 32 are wings, which are preferably of sheet metal, each journaled near  
 10 one edge on its rod 31 at both outer and inner ends, as seen in Fig. 2, with the radial corner of its inner end resting behind the rod 31 next to the rear in the direction of rotation. The outer end of each rod 31 is notched, as  
 15 seen at 33 in Fig. 3, and is threaded to receive a collar or nut 34, and in this notch beneath the nut is secured one end of a spring 35, coiled on the rod behind the wing, while its other extremity throws the free edge of the  
 20 wing normally forward against the force of the wind. Secured to the rod behind the wing by means of set-screws 36 is a clip 37, whose free end prevents the wing from turning too far to the rear under the force of a strong wind, which would further coil the  
 25 spring 35, while the contact of the inner corner of such wing with the rod 31 next in the rear will prevent the wing from turning too far forward and will hold it always at some angle to the direction of the wind.

30 To the free inner corner of each wing is pivoted a link 40, and the inner ends of these links are pivoted to a collar 41, sliding loosely on the main shaft 17 behind the wheel proper and having a groove 42. 43 is a fork whose  
 35 points 44 enter said groove and whose body is pivoted, as at 45, to a clip carried by the spindle, while its lower end is beveled next the upright, as at 46 in Fig. 1. 47 is a cone mounted loosely on the upright just below  
 40 this beveled end 46, and 48 is a lever pivoted on the platform 6 and controlled from the ground by a cord or chain 49 connected to its outer end. By this means, when the chain  
 45 49 is drawn on, the lever raises the cone and the latter passes behind the lower end of the fork, whose upper end draws the collar and links to the rear and hence turns the wings out of the wind as much or as little as may be desired.

50 All parts of this device are preferably of metal, and those which are exposed to the elements are painted, japanned, or galvanized, so as to prevent rusting. The exact shapes and proportions may be varied at will, and  
 55 considerable change in the specific details may be adopted without departing from the spirit of my invention.

What is claimed as new is—

1. In a windmill, the combination with a  
 60 support, a T-coupling mounted for rotation at the upper end thereof, a tail carried at the rear of the T-coupling, a solid plug in its front end, an upright pipe carried by said plug, and a bearing at the upper end of said  
 65 pipe; of a main shaft journaled in such bearing and carrying the wheel, a wicking within

the upright pipe, and means for pressing the wicking against the shaft, as and for the purpose set forth.

2. In a windmill, the combination with an  
 70 upright, a mill-head mounted for rotation thereon, a tail, and a solid horizontal plug carried by said head; of an elbow mounted on the front end of the plug, an upright pipe carried by the elbow, a T-coupling mounted  
 75 on the upper end of said pipe and forming a bearing, the main shaft journaled therein and carrying the wheel, a coiled spring within said elbow and pipe resting at its lower end against the plug, and a wicking supported by  
 80 said spring against the lower side of the shaft within its bearing, as and for the purpose set forth.

3. In a windmill, the combination with the  
 85 main shaft mounted in a horizontal bearing, a wind-wheel carried thereby, and a crank also carried thereby; of an upright pump-rod, and a casting carried by this rod and having an upwardly-curved slot with horizontal  
 90 ends receiving the pin of said crank, as and for the purpose set forth.

4. In a windmill, the combination with the  
 upright and mill-head, the main shaft, a hub thereon, and fixed rods radiating from said  
 95 hub and each having a notch in its outer end; and threads around its body opposite such notch of the wings pivoted near one edge each to its supporting-rod with its inner radial corner resting behind the rod next in rear, a  
 100 spring coiled on the rod with one end in the notch thereof and its other end resting behind the wing, a nut on the rod for closing said notch and holding the end of the spring therein, a clip mounted to the rod with its  
 105 body standing behind the wing, and a set-screw in the clip against said rod, as and for the purpose set forth.

5. In a windmill, the combination with the  
 upright, a spindle journaled thereon and carrying the mill-head, the main shaft, a hub  
 110 thereon, fixed rods radiating from said hub, wings mounted one on each rod, and a spring throwing each wing normally into the wind; of a collar sliding on the main shaft and having an exterior annular groove, a link pivotally  
 115 connecting the outer corner of each wing with this collar, a fork pivoted to the spindle with its points turned in and engaging the groove of said collar and its lower end standing adjacent the upright and beveled, a cone  
 120 sliding on the upright adapted to pass under this bevel, and a lever for raising the cone from the ground, as and for the purpose set forth.

In testimony whereof I have hereunto set  
 125 my hand in presence of two subscribing witnesses.

FREDERICK JOHN BURUCKER.

Witnesses:

L. FEESER, Jr.,  
 GEO. E. SCALES.