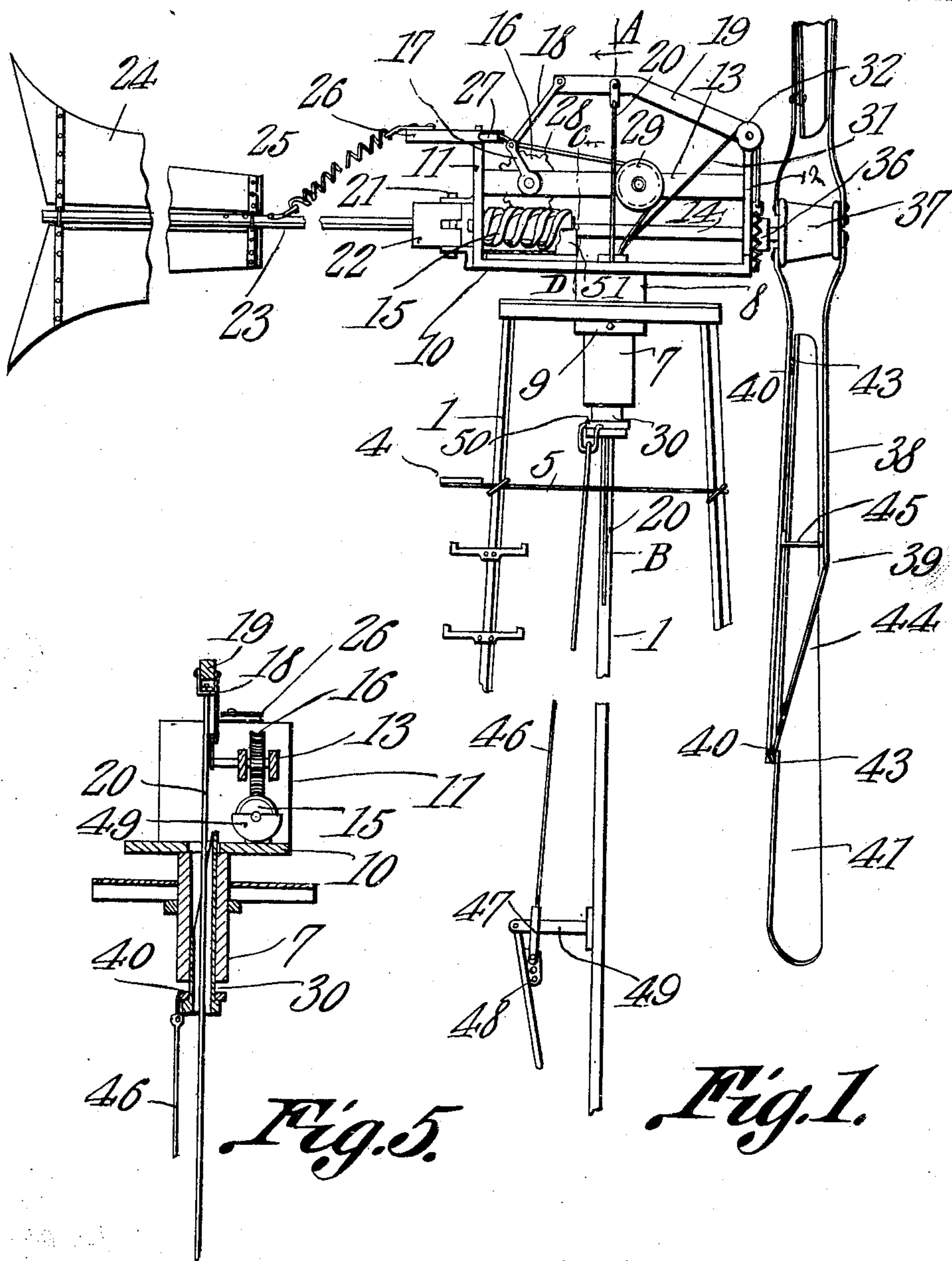


978,716.

J. L. DWIGHT.
WINDMILL.
APPLICATION FILED APR. 25, 1910.

Patented Dec. 13, 1910.

2 SHEETS-SHEET 1.



Witnesses

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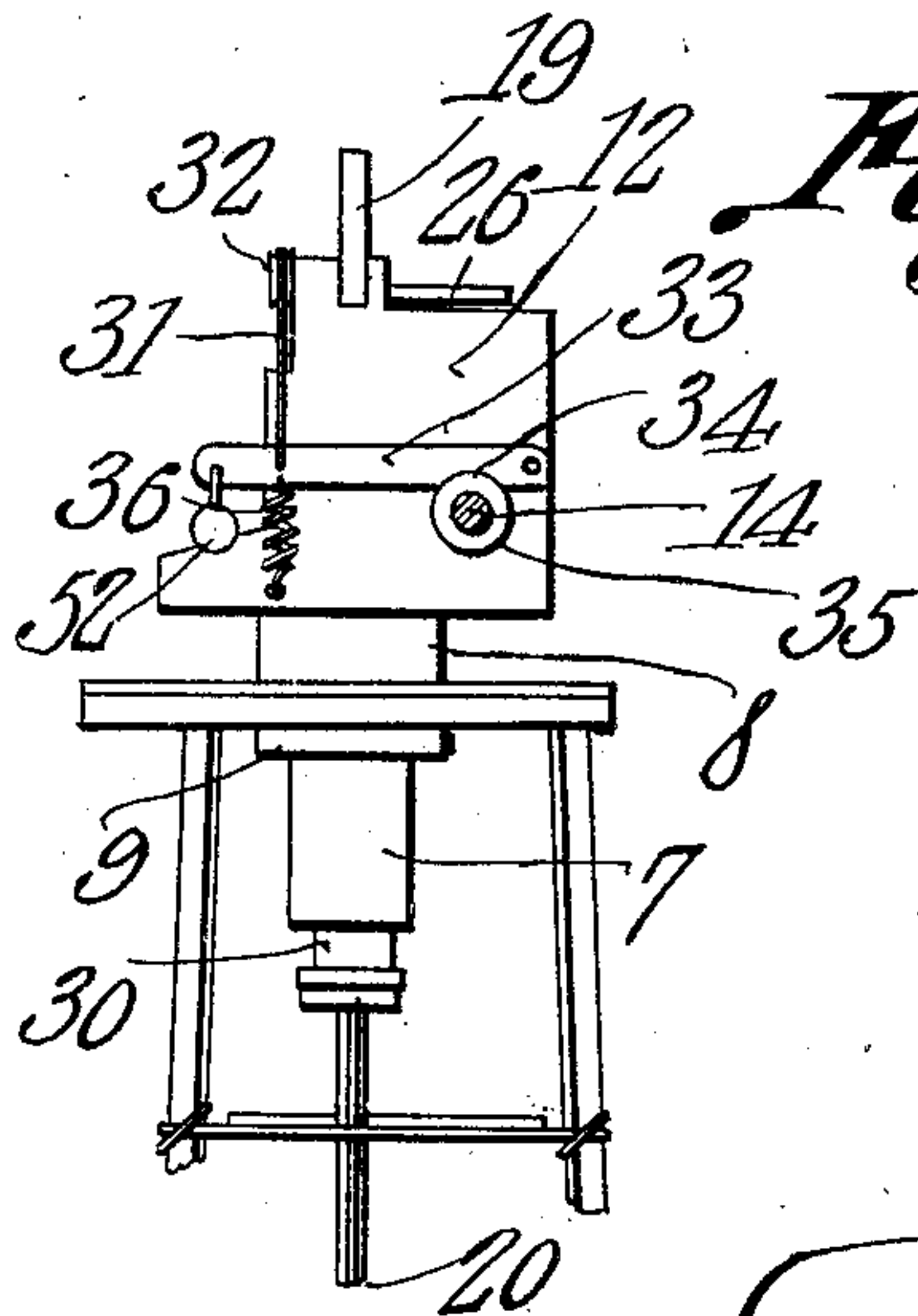


Fig. 3.

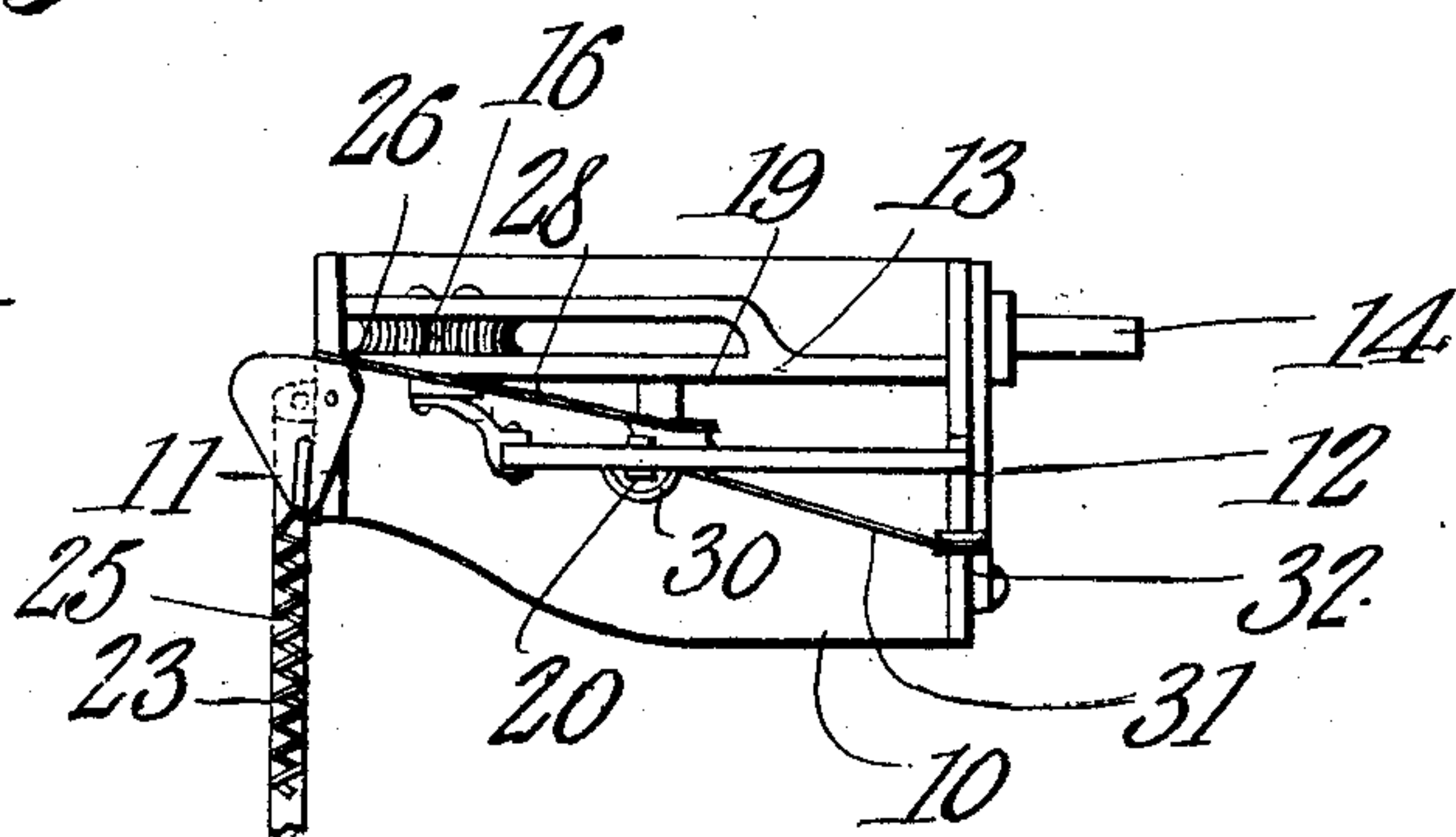


Fig. 2.

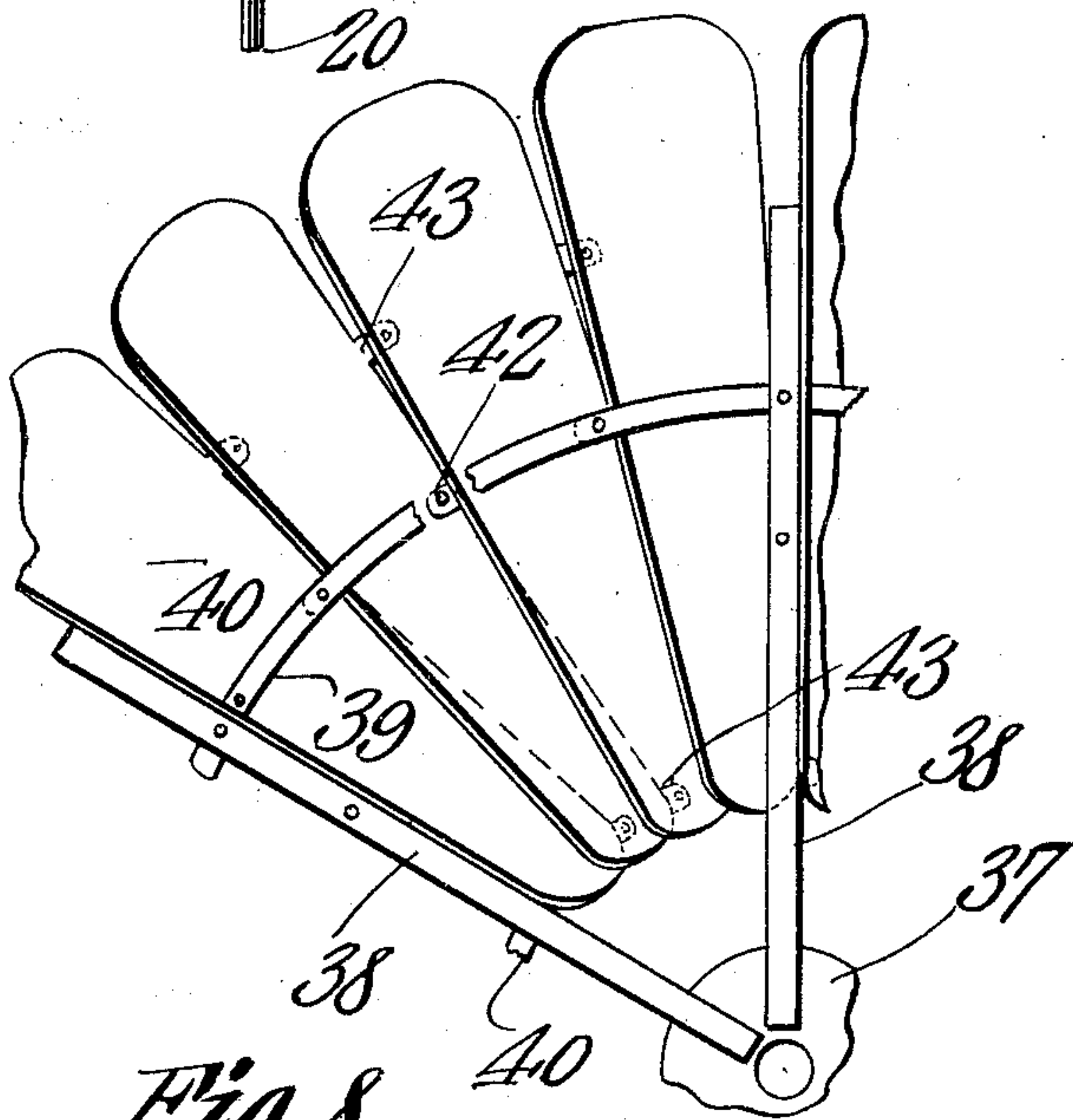


Fig. 4.

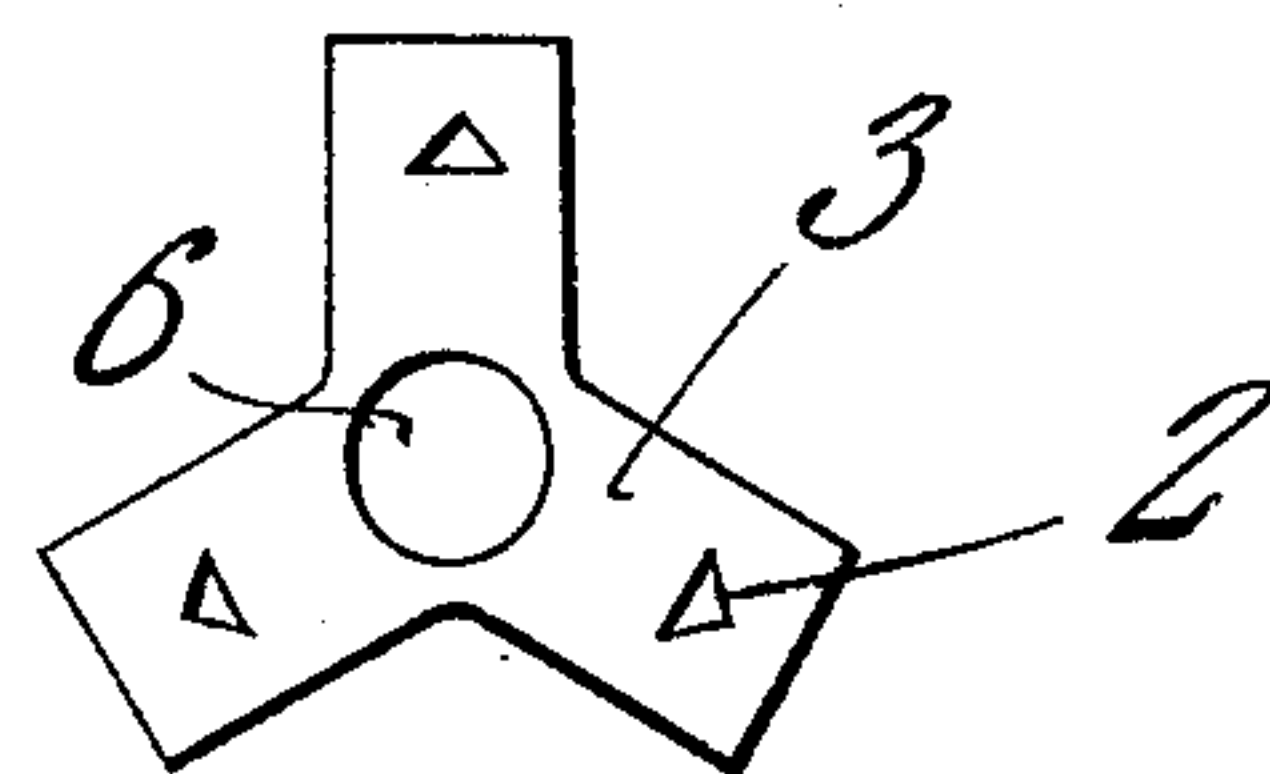


Fig. 7.

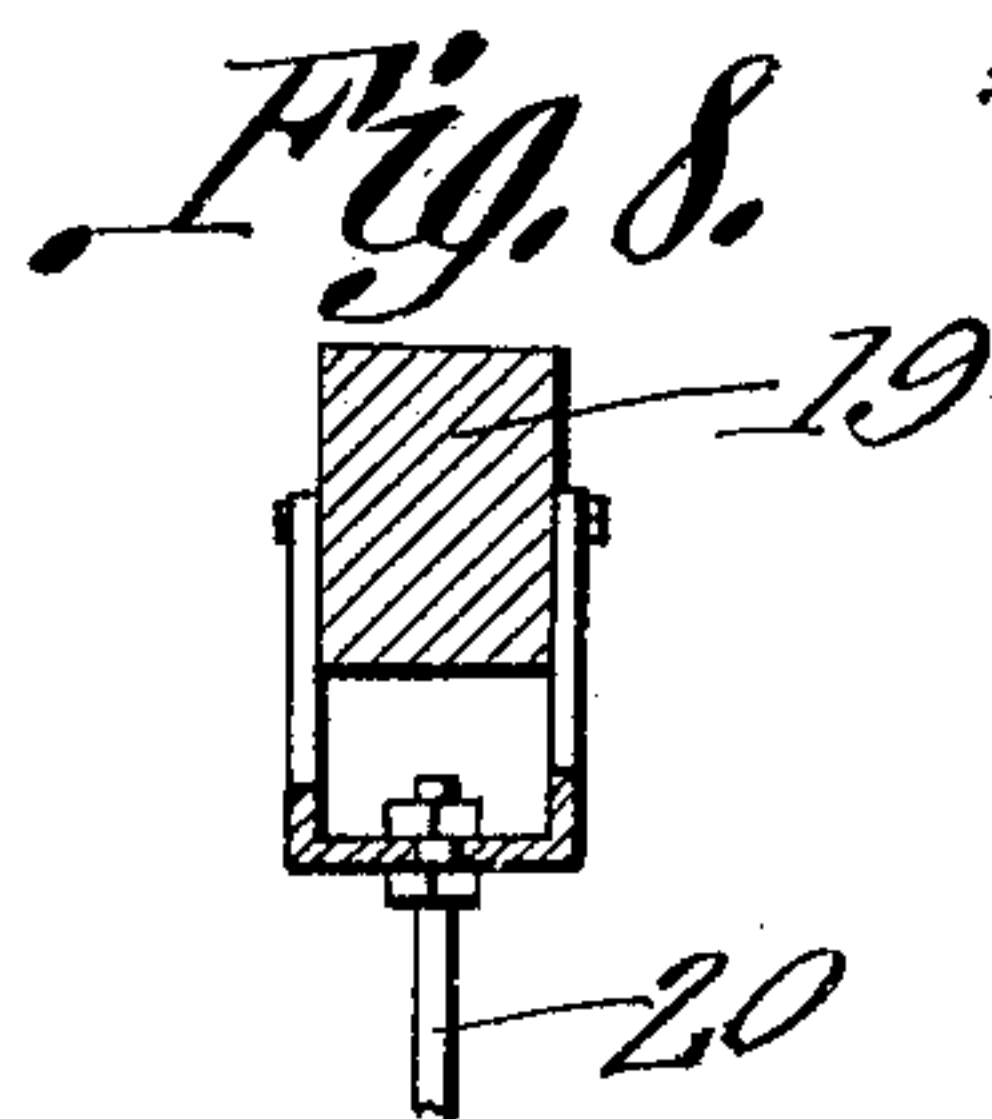


Fig. 8.

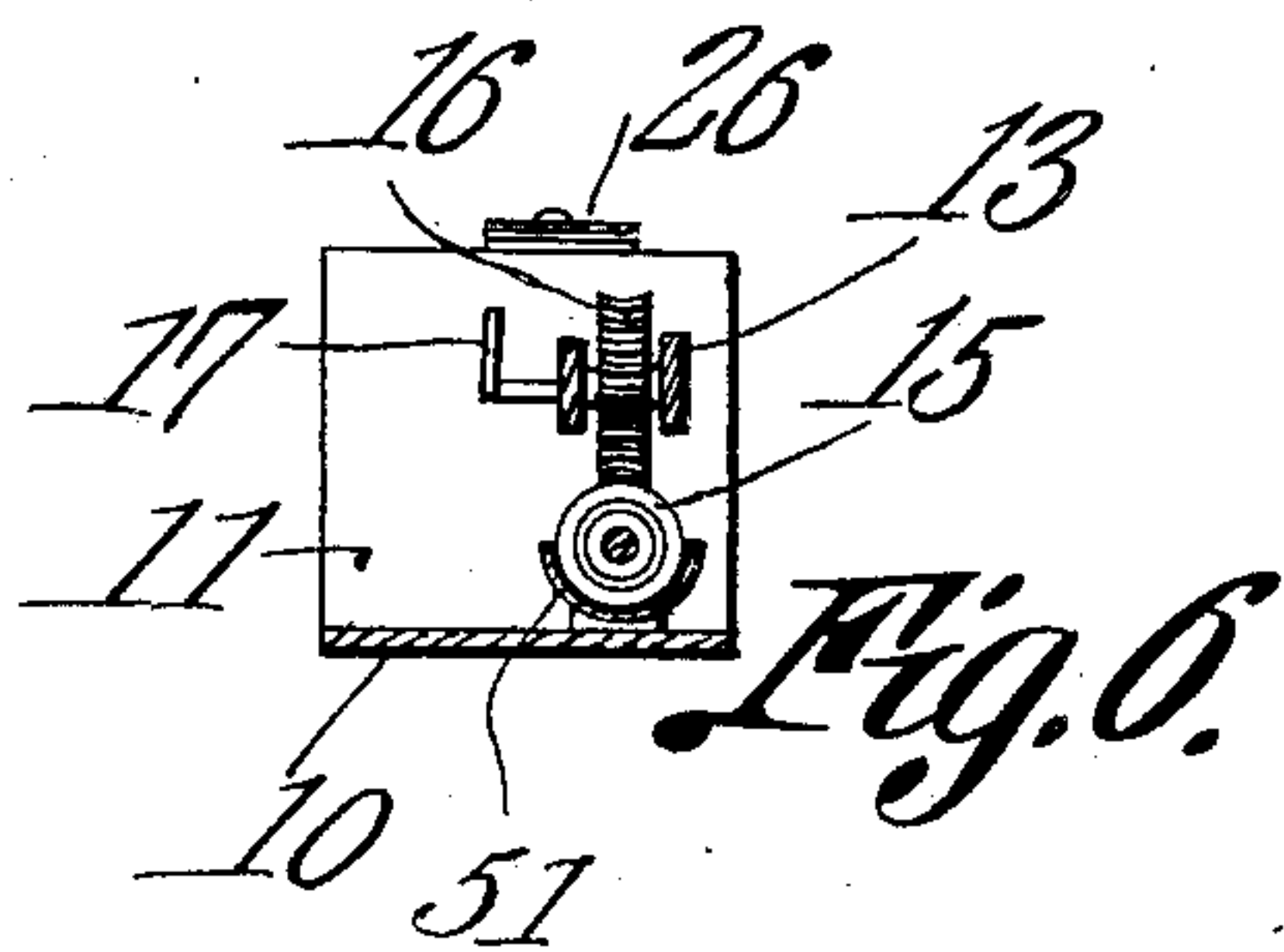


Fig. 6.

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WINDMILL.

978,716.

Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed April 25, 1910. Serial No. 557,483.

To all whom it may concern:

Be it known that I, JAMES L. DWIGHT, a citizen of the United States, residing at Roanoke, in the county of Denton and State of Texas, have invented a new and useful Windmill, of which the following is a specification.

This invention relates to windmills and one of its objects is to provide improved means for transmitting motion from the shaft of the wind wheel to the pump rod.

Another object is to provide novel means for locking the wheel against rotation and at the same time releasing the vane so as to permit the wheel to present its edge to the wind and thus be relieved of excessive strain while the said wheel is held against rotation.

A further object is to provide means whereby the vane can be shifted into the wind simultaneously with the release of the wheel, which is thus turned so as to present its blades to the wind and to be actuated by it.

With these and various other objects in view the invention consists of certain novel details of construction and combinations of parts as hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings: Figure 1 is a view partly in section and partly in elevation of the upper portion of a windmill constructed in accordance with the present invention, portions of the vane and wheel being removed and the said vane being shown in the position assumed by it during the operation of the wheel. Fig. 2 is a plan view of the head of the mill and the parts mounted thereon. Fig. 3 is a front elevation of the head, the wheel being removed and its shaft being shown in section. Fig. 4 is a front elevation of a portion of the wheel. Fig. 5 is a section on line A—B of Fig. 1. Fig. 6 is a section on line C—D Fig. 1. Fig. 7 is a plan view of the top member of the tower. Fig. 8 is a section through the rod operating lever and showing the connection between the rod and lever.

Referring to the figures by characters of reference 1 designates the standards of the tower, the same being preferably formed of either angle irons or triangular tubes, the upper ends of the standards being fitted

within openings 2 formed within the top or table 3 of the tower.

A platform 4 may be supported adjacent the top 3 in any suitable manner, as by means of arms 5 bolted or otherwise secured to the standards and extending beyond one side of the tower. The platform 4 may extend either partly or entirely around the tower.

An opening 6 is formed in the top 3 and a tubular member 7 is mounted for rotation therein, such member being provided with an annular enlargement 8 at its upper end and which bears upon the top 3. Upward movement of the member 7 within the top 3 is prevented by a collar 9 which is secured to said member 7.

The head of the mill is secured to the upper end of the member 7 and consists of a base 10 having end standards 11 and 12 which may be connected by a forked cross bar 13 or the like. A shaft 14 is journaled in the two standards and secured upon the shaft adjacent one of the standards is a worm 15 which meshes with and is adapted to actuate a gear 16 journaled within the fork of the bar 13. A crank arm 17 is connected to and rotates with the gear 16 and transmits motion through a pitman 18 to a lever 19 one end of which is fulcrumed upon the standard 12. The pump rod 20 is pivotally connected to this lever at a point above the center of the member 7 and extends downwardly through said member.

Brackets 21 extend outwardly from the standard 11 and pivotally mounted between them is a block 22 from which projects a stem 23, this stem being preferably formed of an angular metal tube and having a vane 24 attached to the outer end thereof. This vane may be of any suitable construction and the stem 23 has a spring 25 attached to it and extending upwardly therefrom. The upper end of this spring is attached to an eccentric 26 which is mounted to swing in a horizontal plane upon the upper end of the standard 11 and has a groove 27 in the margin thereof. A chain or metal cord 28 is secured to the eccentric 26 close to the spring 25 and is mounted in the groove 27, this flexible element being extended over a guide sheave 29 which is journaled upon the cross bar 13 and being then extended downwardly and attached to tubular slide 30 mounted within the member 7 and extend-

ing around the rod 20. Another chain or metal cord 31 is attached to the slide 30 and extends upwardly over a guide sheave 32 and thence downwardly to a brake lever 33 having a recess 34 therein designed to bear upon a collar 35 which rotates with the shaft 14. Said lever is held normally in frictional engagement with the collar 35 by means of a spring 36.

It is to be understood that when the brake lever is applied to the collar 35, the slide 30 is in its uppermost position and the vane 24 extends substantially at right angles to the shaft 14 as indicated in Fig. 2.

The wind wheel preferably consists of a hub 37 the spokes of which are in the form of elongated metallic strips 38, having their inner ends secured to the ends of the hub 37. These strips are connected by concentric rings 39 and 40, there being one ring 39 located upon the front spokes while a ring 40 is located upon the back spokes and close to the hub, there being another ring 40 located upon the back spokes and adjacent their outer ends. The inclined blades 41 are extended between the spokes and also between the rings 39 and 40, each of these blades being provided adjacent the center of one edge with an ear 42 which is riveted or otherwise secured to the ring 39 while two ears 43 extend from the other edge of these blades and are riveted or otherwise secured to the rings 40. The front spokes are preferably extended diagonally as at 44 and connect the outer ring 40 with the front ring 39 and the front and rear spokes can be connected at an intermediate point by means of a transverse brace 45.

It will be understood that the slide 30 can be actuated in any manner, as by means of a rod 46 connected at its lower end to a yoke 47 which, in turn, is pivoted to a lever 48 fulcrumed on a bracket 49. When the lever is swung past its fulcrum in one direction, it holds the rod, and the parts connected thereto, in one position and, when moved in the opposite direction, releases said parts. The upper end of the rod 46 is connected to a ring 50 in which the slide 30 is adapted to rotate.

Under normal conditions, and when the lever 47 is released or elevated, the spring 36 serves to hold the brake lever 33 applied to the collar 35, thus preventing the wheel from rotating when subjected to the action of the wind. With the slide 30 thus elevated by means of the chain or cord 31, the chain or cable 28 becomes slack and the spring 25, which is under stress, swings vane 24 back until it assumes a position substantially at right angles with the shaft 14 and parallel with the plane of rotation of the wind wheel. This position of the vane has been indicated in Fig. 2. When the vane is thus located the wheel will, of

course, be held out of the wind and will therefore be relieved of excessive strain. When it is desired to have the mill operate for the purpose of pumping, the lever 47 is pulled downward past its fulcrum so as to become locked and this will cause the slide 30 to move downwardly within the member 7. The said slide will thus pull simultaneously on the two flexible elements 28 and 31. The element 28 will swing the eccentric 26 about its pivot and motion will be transmitted from the eccentric through the spring 25 to the vane and said vane will therefore be brought into position at right angles to the plane of rotation of the wind wheel. At the same time the flexible element 31 elevates the brake lever 33 and thus releases the shaft 14. As soon as the vane is shifted in the manner described the wind acting thereagainst will swing the head of the mill so as to bring the wheel into the wind and said wheel will therefore be rotated, causing the worm 15 to revolve. As this worm meshes with the gear 16, the said gear will also be rotated and will transmit motion through the crank 17 and pitman 18 to lever 19. Rod 20 will therefore be reciprocated. As soon as it is desired to stop the operation of the pump of the mill, it merely becomes necessary to release the lever 47 and to move it upwardly whereupon the spring 36 will draw the brake lever into frictional engagement with the collar on shaft 14 and the spring 25 will move the vane back to its normal position.

In order that the worm 15 may be thoroughly lubricated at all times, a grease cup 51 is preferably mounted within the head of the mill the said worm working within the cup and in direct contact at all times with the lubricant contained therein.

If desired, a weight 52 may be mounted on the brake lever 33 and used either with or without the spring 36.

It is to be understood of course that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention as defined in the appended claims.

What is claimed is:

1. A windmill including a head mounted for rotation, a wind-wheel carried by the head, a vane mounted for lateral swinging movement relative to the head, an eccentric movably mounted on the head, an elastic connection between the eccentric and vane, and means for actuating said eccentric to transmit motion through the elastic connection to the vane.

2. A windmill including a head mounted for rotation, a vane mounted for lateral swinging movement upon the head, an eccentric movably mounted on the head, means for rotating the eccentric, and elastic means

for transmitting motion from said eccentric to the vane.

3. A windmill including a head mounted for rotation, a shaft journaled thereon, a
5 wheel on the shaft, a spring controlled brake lever normally engaging the shaft to hold the wheel against rotation, a vane mounted for lateral swinging movement, an eccentric, means for simultaneously shifting the lever
10 out of engagement with the shaft and rotating the eccentric, and elastic means for transmitting motion from the eccentric to the vane to shift said vane into a position substantially perpendicular to the plane of
15 the wheel.

4. A windmill including angular standards, a table having angular openings for the reception of the upper ends of the standards, said table having an opening, a tubular

member mounted for rotation in the open- 20
ing, a head secured to and movable with said tubular member, said member having an annular enlargement bearing downwardly on the table, a vane mounted for lateral swing-
25 ing movement upon the head, a tubular slide within the extension, means for actuating the slide, an eccentric mounted for rotation on the head, means operated by the slide for rotating the eccentric, and elastic means for transmitting motion from the eccentric to
30 the vane.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES L. DWIGHT.

Witnesses:

FRANK C. BROWN,
WILLE G. MAXWELL.