

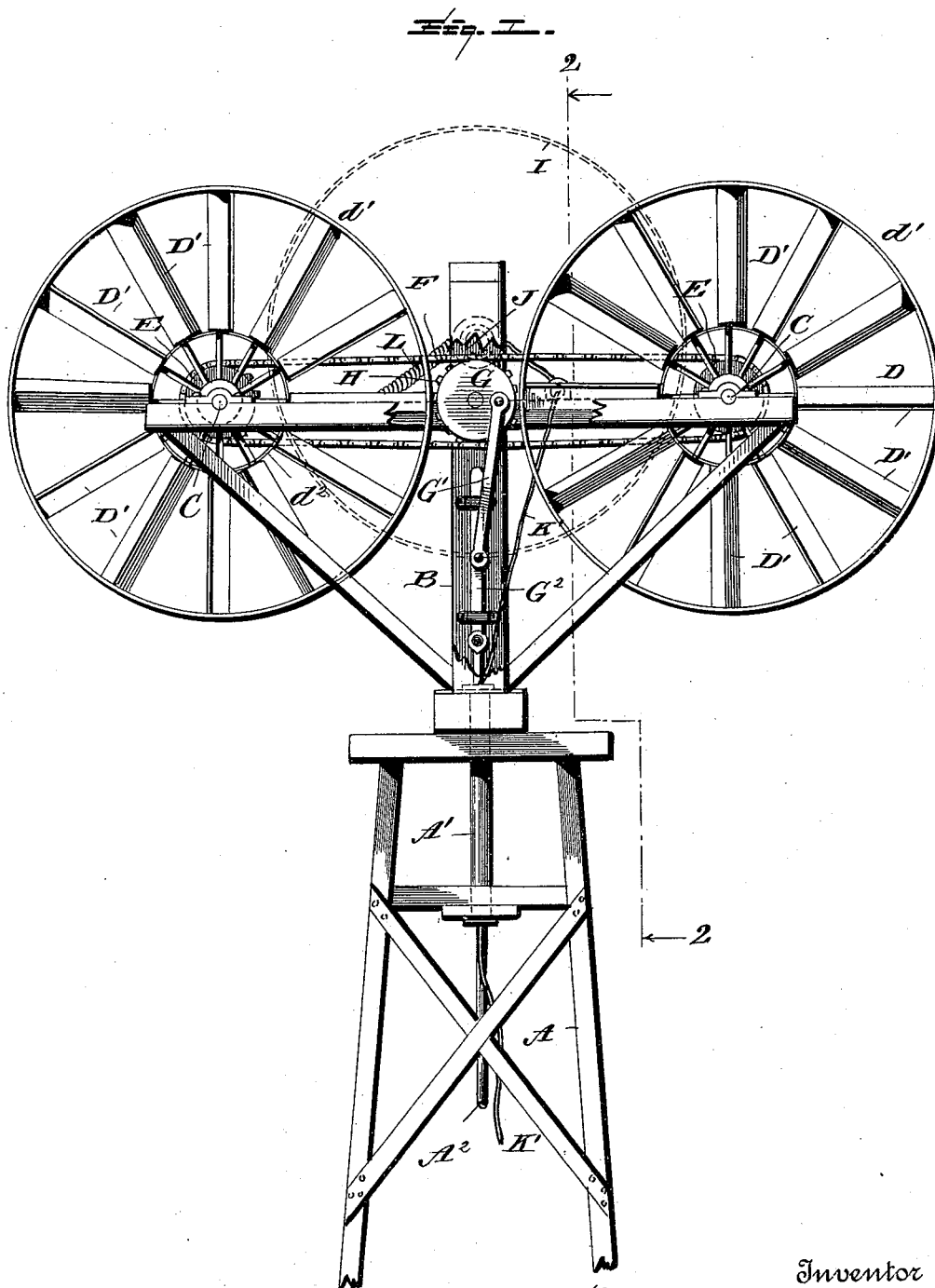
(No Model.)

2 Sheets—Sheet 1.

C. R. BOWMAN.  
WINDMILL.

No. 493,060.

Patented Mar. 7, 1893.



Witnesses

*L. C. Mills.*

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# UNITED STATES PATENT OFFICE.

CHARLES R. BOWMAN, OF SAN ANGELO, TEXAS.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 493,060, dated March 7, 1893

Application filed August 22, 1892. Serial No. 443,755. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. BOWMAN, a citizen of the United States, residing at San Angelo, in the county of Tom Green and State of Texas, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in wind wheels and it has for its objects among others to provide an improved wheel from which more power can be obtained with a given amount of wind. I provide a wheel every other blade of which has a right angled extension or cup to catch the wind, the blades thus formed being set in the hub and rim of the wheel so as to have said right angled portions where they will receive the full force of the wind. These right angled portions are strengthened and supported by a suitable ring.

The invention has for a further object to provide improved mechanism for imparting motion to the pump rod from the wheel.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification and in which

Figure 1 is a side elevation of my improvements. Fig. 2 is a vertical section on the line 2 2 of Fig. 1, looking in the direction of the arrows. Fig. 3 is a perspective detail of a portion of the fan wheel. Fig. 4 is a perspective view of one of the blades removed.

Like letters of reference indicate like parts throughout the several views in which they appear.

Referring now to the details of the drawings by letter, A designates the tower of any well known or approved form of construction and A' is the tube through which the pump rod A<sup>2</sup> reciprocates.

B are standards rising from the top of the tower and in suitable bearings on which the shafts C C are supported the said shafts being

parallel with each other and each carrying a wheel D which is constructed as follows; *d* is its hub which has a rectangular passage for the reception of a like part of the shaft and D' are the blades of the wheel which are supported in the said hub and in the rim *d'* thereof as seen best in Fig. 3; each alternate blade has a right angled extension or portion D<sup>2</sup> as seen best in Figs. 3 and 4 which is arranged so that the force of the wind will be received by the said extension or cup and thereby greater power will be realized. A ring or collar or band *d*<sup>2</sup> is provided to connect the inner ends of the main portions of the blades as seen in Fig. 3 to strengthen the same.

In a double mill I provide a sprocket wheel E on each of the wheel shafts as seen in Fig. 1 by full lines and F is a sprocket band or chain passed over these sprocket wheels as seen in said Fig. 1.

G is the crank disk suitably mounted and having a pitman G' connected with its crank pin as seen in Figs. 1 and 2, the other end of said pitman being connected with the pump rod through the medium of a link G<sup>2</sup> pivotally connected with the pump rod and moving in suitable guides on the upright of the frame work on top of the tower as seen in Figs. 1 and 2. On the shaft of this crank disk, or it may be upon its periphery is a sprocket wheel H over which the sprocket chain passes as seen in Fig. 1 so that motion is given to the crank disk and consequently to the pump rod through the medium of the sprocket chain as will be readily understood.

In a single mill in lieu of the two wheels I employ a single wheel as indicated by dotted lines in Fig. 1 at I and on the shaft of this single wheel affix a gear wheel J which will mesh with a gear wheel on the shaft of the crank disk or formed upon its periphery. By this means motion from the wheel is communicated directly to the crank disk. The relative proportions of the wheels and gears may be varied as may be desired according to the number of revolutions desired.

K is the tail vane; it is pivoted in suitable bearings on the frame work on the top of the tower as seen in Fig. 2 and K' is a cord connected therewith for throwing it out of the wind when desired; a spring L is connected at one end to the said vane and at the other

end to the frame work as shown to normally keep the tail vane to its work. If desired an additional gear wheel may be employed so as to multiply power. As this is a well known means of multiplying power I have not shown it in the drawings.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

10 What I claim as new is—

1. A wind wheel consisting of a hub, a rim, blades held in said hub and rim each alternate blade being substantially L-shaped in cross section each alternate intermediate blade being practically flat and arranged at an angle to the L shaped blades and a ring holding the inner ends of the main portions of the blades, as set forth.

2. The combination with the standards and

the horizontal frame work thereon, of the wind wheels journaled one near each end of said frame work, sprocket wheels on the shafts of the wheels, the crank disk mounted on the standards and having sprocket wheel on its shaft, the horizontal sprocket chain running over all of said sprocket wheels, the pump rod, and connections between the same and the disk, the tail vane and the spring connected at one end to the tail vane and at the other to the frame work, substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES R. BOWMAN.

Witnesses:

J. R. BURT,

J. N. P. CRAMER.