

(No Model.)

2 Sheets—Sheet 1.

J. G. CARNAHAN.
WINDMILL GEARING.

No. 565,105.

Patented Aug. 4, 1896.

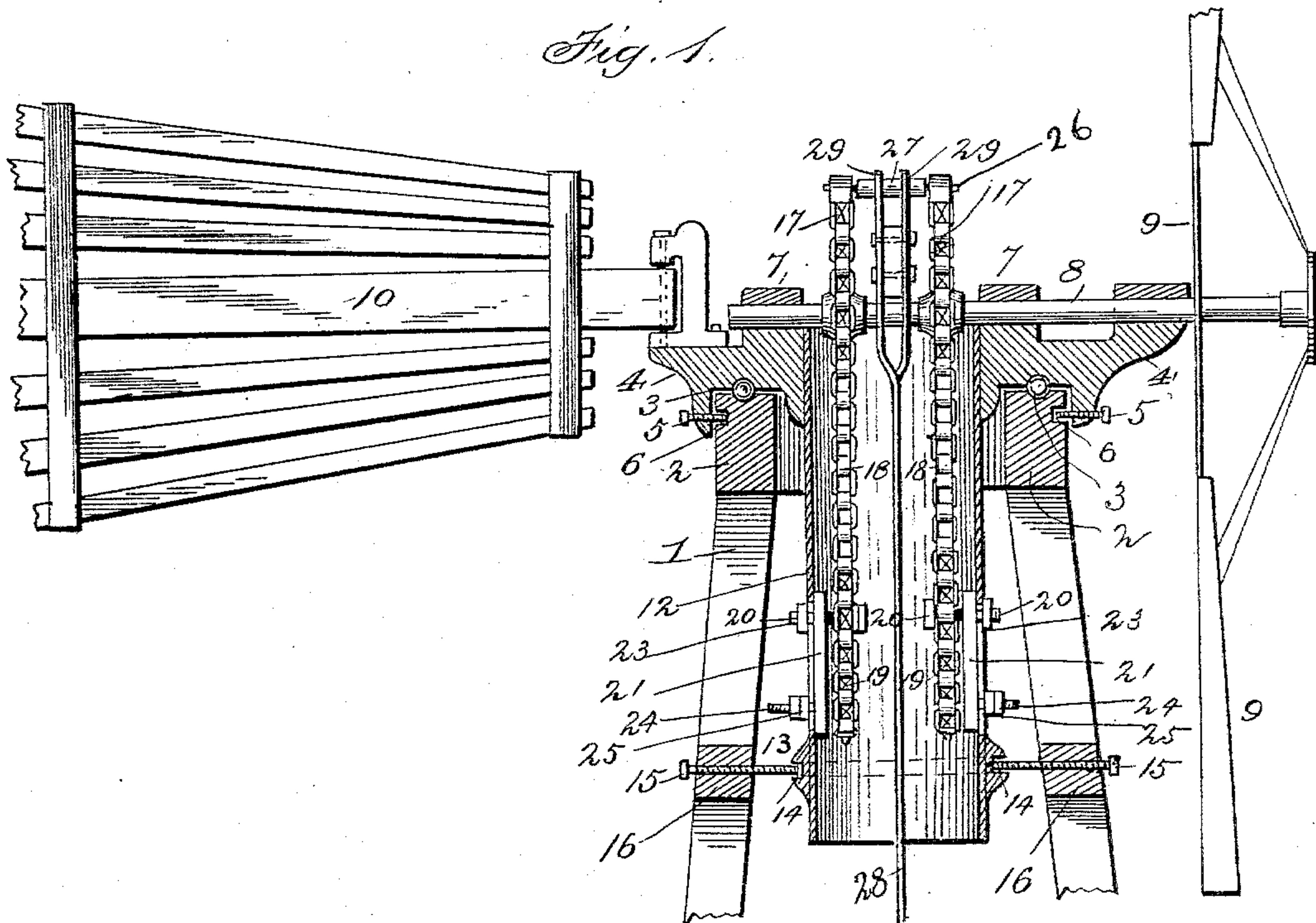


Fig. 3.

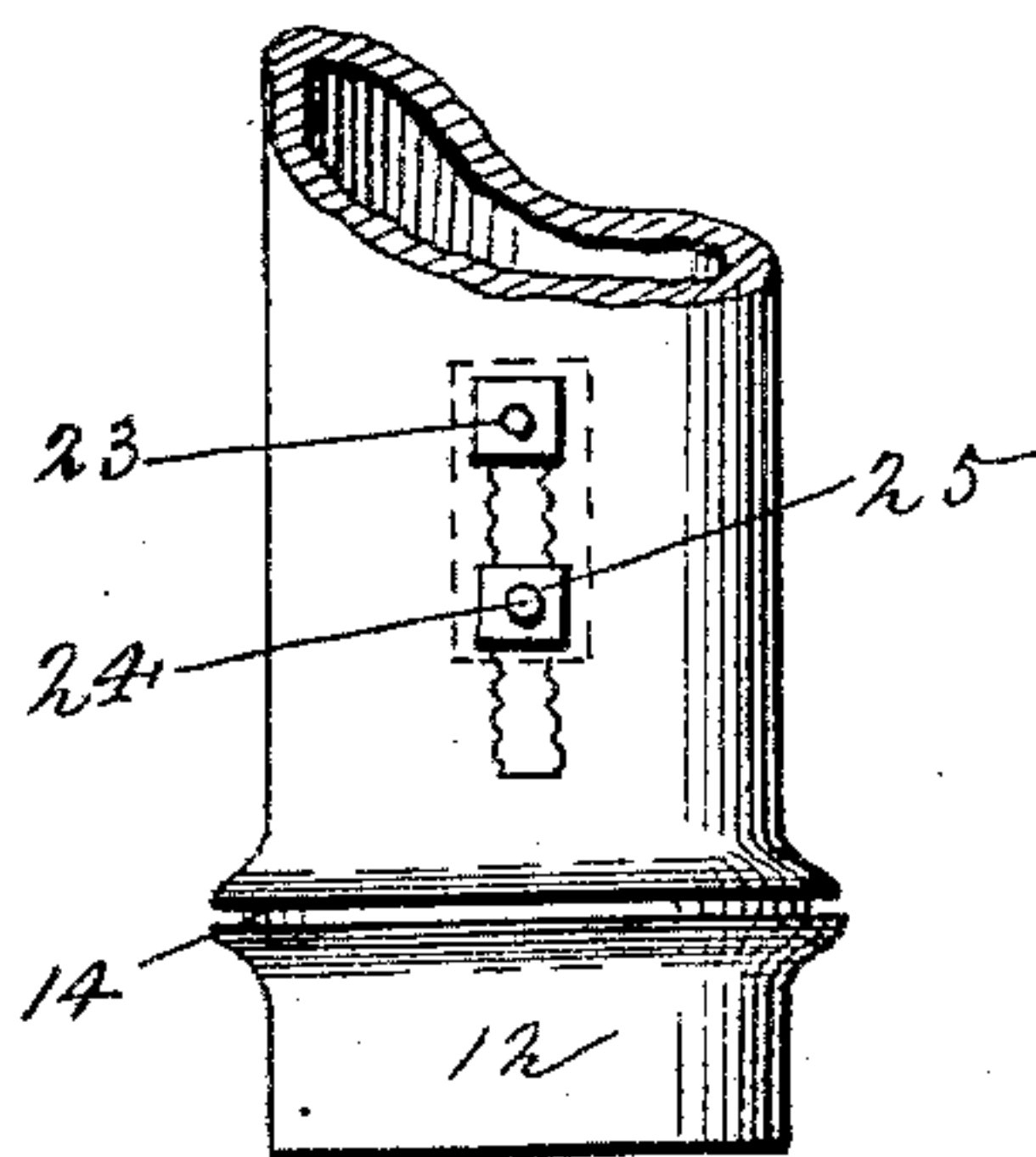


Fig. 4.

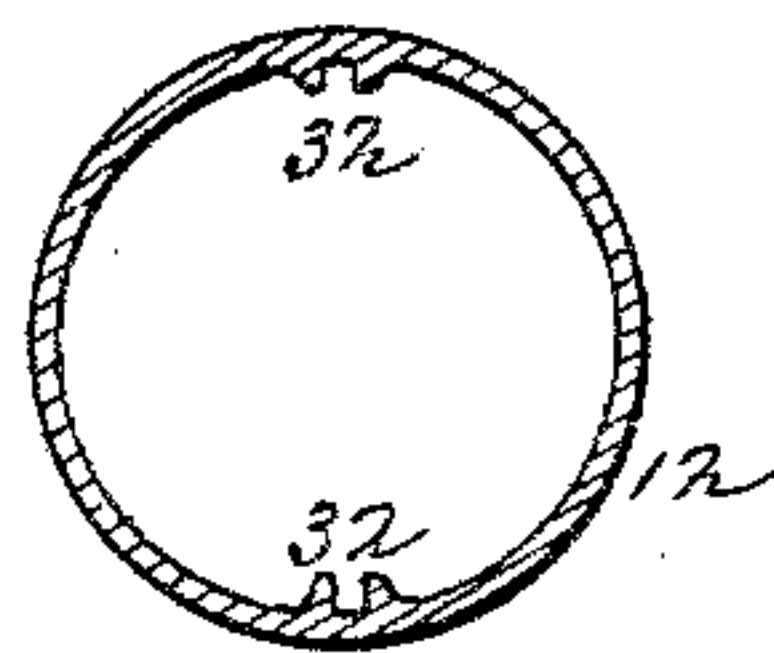
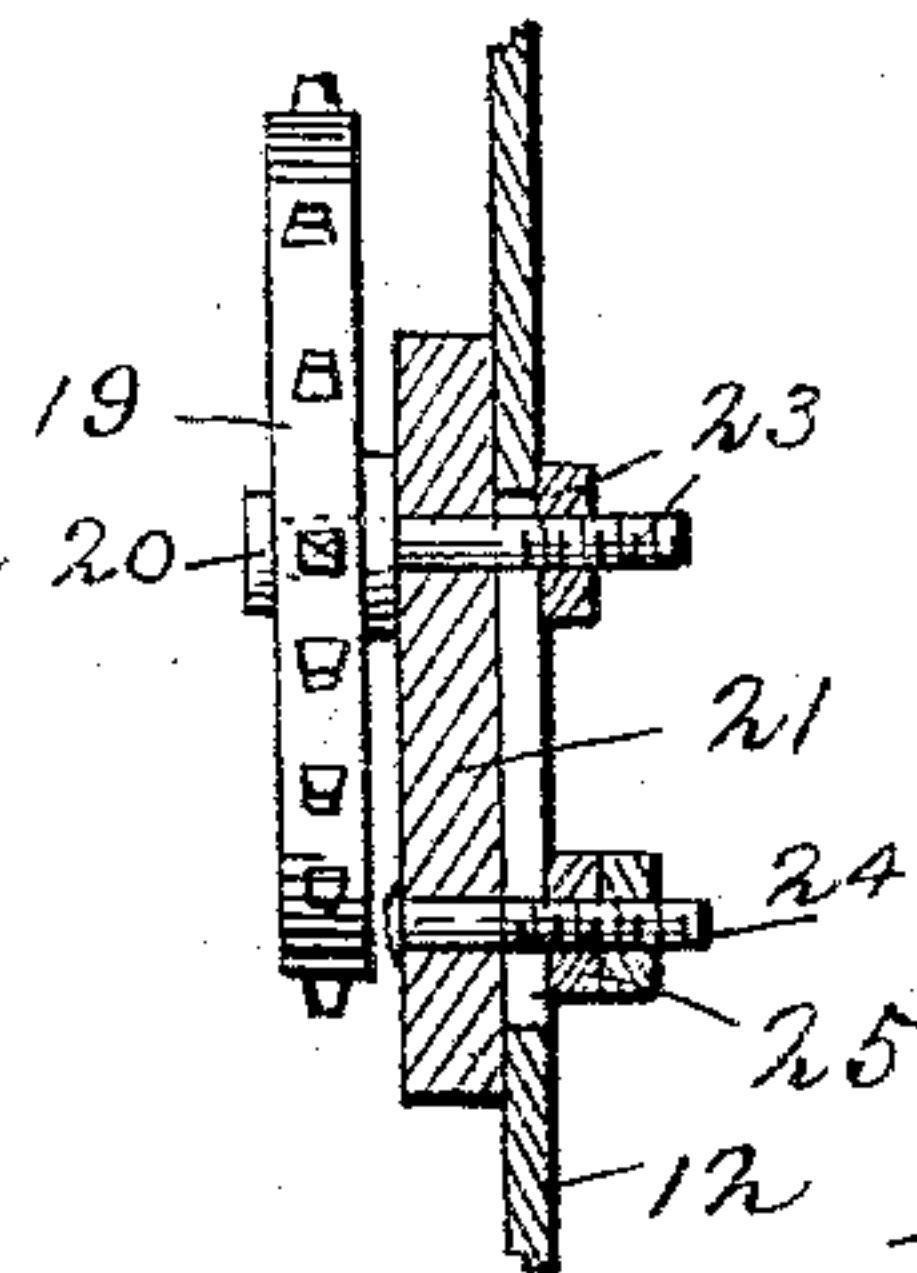


Fig. 3a.



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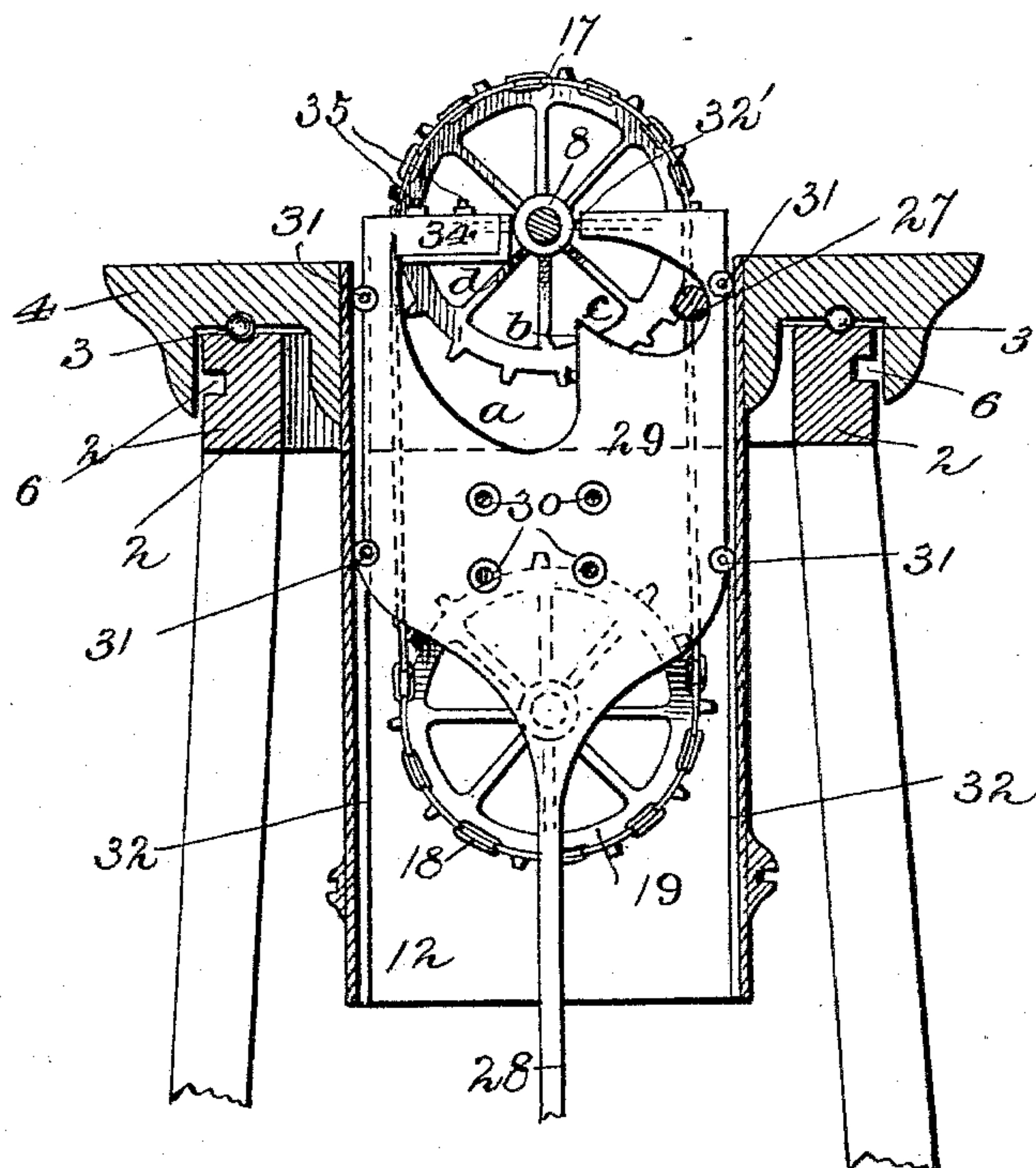
2 Sheets—Sheet 2.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN G. CARNAHAN, OF OXFORD, INDIANA.

WINDMILL-GEARING.

SPECIFICATION forming part of Letters Patent No. 565,105, dated August 4, 1896.

Application filed July 26, 1895. Serial No. 557,174. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. CARNAHAN, a citizen of the United States, and a resident of Oxford, in the county of Benton and State of Indiana, have invented certain new and useful Improvements in Windmill-Gearing; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to windmills, and its object is to provide improved means for transmitting movement from the main shaft, whereby I secure important advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of the upper part of a windmill constructed in accordance with my invention. Fig. 2 is a detail longitudinal sectional view taken in a plane at a right angle to Fig. 1. Figs. 3, 3^a, and 4 are detail views.

In the said drawings, the reference-numeral 1 designates the upper part of the tower, provided with ring 2 at the top, provided with an annular groove in its upper side to receive the ball-bearings 3.

The numeral 4 designates a turn-table provided with an annular groove on its lower side which engages with the ball-bearings. This turn-table is provided with studs 5, which engage with a peripheral groove 6 in the ring and hold the turn-table in place. Journaled in bearings 7 is the main shaft 8, provided with a wind-wheel 9 and vane 10. So far the construction may be of any ordinary or usual construction, and such forms no part of my present invention.

Secured to the turn-table is a downwardly-depending tube 12, provided near its lower end with a peripheral flange 13, formed with a groove 14, with which engage screw-rods 15, passing through the standards 16 of the tower, by which means the said tube is braced and steadied. Fixed to the main shaft are two sprocket-wheels 17, connected by sprocket-

chains 18 with two similar wheels 19, the journals 20 of which are connected with vertically-adjustable blocks 21. These journals are screw-threaded and are held in place by nuts 23. Secured to said blocks are outwardly-extending screw-rods 24, provided with nuts 25 for holding the blocks in place after having been adjusted. The object of making the blocks adjustable is to take up any slack of the chains. The numeral 26 designates a transverse shaft secured to said chains and provided with a roller 27 for a purpose which will be hereinafter explained.

The numeral 28 designates two rods, the lower ends of which are connected with the pump-rod. (Not shown.) The upper ends of these rods are formed into or provided with flattened plates 29, secured together by bolts 30. These plates at their edges are provided with rollers 31, which travel in guideways 32 in the tube.

The plates, which, when bolted together, form practically a single head, are formed with irregular-shaped cam-slots which coincide or register with each other and are cut away at the upper end to form a passage 32 for the main shaft as they travel up and down. Each of these slots comprises the curved portion *a*, vertical portion *b*, and curved portion *c*, and horizontal portion *d*. Secured to said horizontal portion is an adjustable plate 34, connected with the plates by means of screw-bolts 35.

The operation is as follows: As the main shaft is rotated by the wind-wheel motion will be imparted to the sprocket-chains by the sprocket-wheels. As these chains travel downwardly the roller 27, which works in the cam-slots, engages with the curved portion *a* of the said plates and carries said plates down with them, the main shaft passing through the opening at the top. This gives the down-stroke to the pump-rod. When the plates reach the end of the stroke, the roller will slide out of the curved portion onto the plate on the horizontal portion *d*. As the chains now pass upward the plates will be elevated, and the main shaft will pass through the passage in the top and down along the vertical portion *c* of the slot.

By the peculiar construction of the cam-slots there is no liability of the roller 27 miss-

ing engagement with the plate 34 as it moves off of the curved portion of slot *c*.

Having thus fully described my invention, what I claim is—

5 1. In a windmill, the combination, with the main shaft, the sprocket-wheels secured thereto, the downwardly-depending tube, the sprocket-wheels journaled thereto, the sprocket-chains, the rod connected therewith
10 and the roller, of the vertically-reciprocating plates formed with the curved cam-slot *c*, the vertical portion *b*, the curved portion *a*, horizontal portion *d*, and said plates formed with an opening or passage-way at their upper
15 ends, substantially as described.

2. In a windmill, the combination with the main shaft, the sprocket-wheels secured thereto, the downwardly-depending tube formed on its interior with vertical guide-

ways, the sprocket-wheels journaled to said 20 tube, the sprocket-chains, the rod connected therewith and the roller, of the vertically-reciprocating plates, the rollers working in said guideways the irregular cam-slots, comprising the curved portion *c*, the vertical portion 25 *b*, the curved portion *a*, the horizontal portion *d*, the plate secured to said horizontal portion, and said reciprocating plates formed with an opening or passage-way at their upper ends, substantially as described. 30

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

JOHN G. CARNAHAN.

Witnesses:

JACOB S. ALBAUGH,
JOE F. SLEEPER.