(No Model.) 2 Sheets—Sheet 1.

C. H. PAGETT.

WINDMILL.

No. 524,607. Patented Aug. 14, 1894.

Fig. 1.

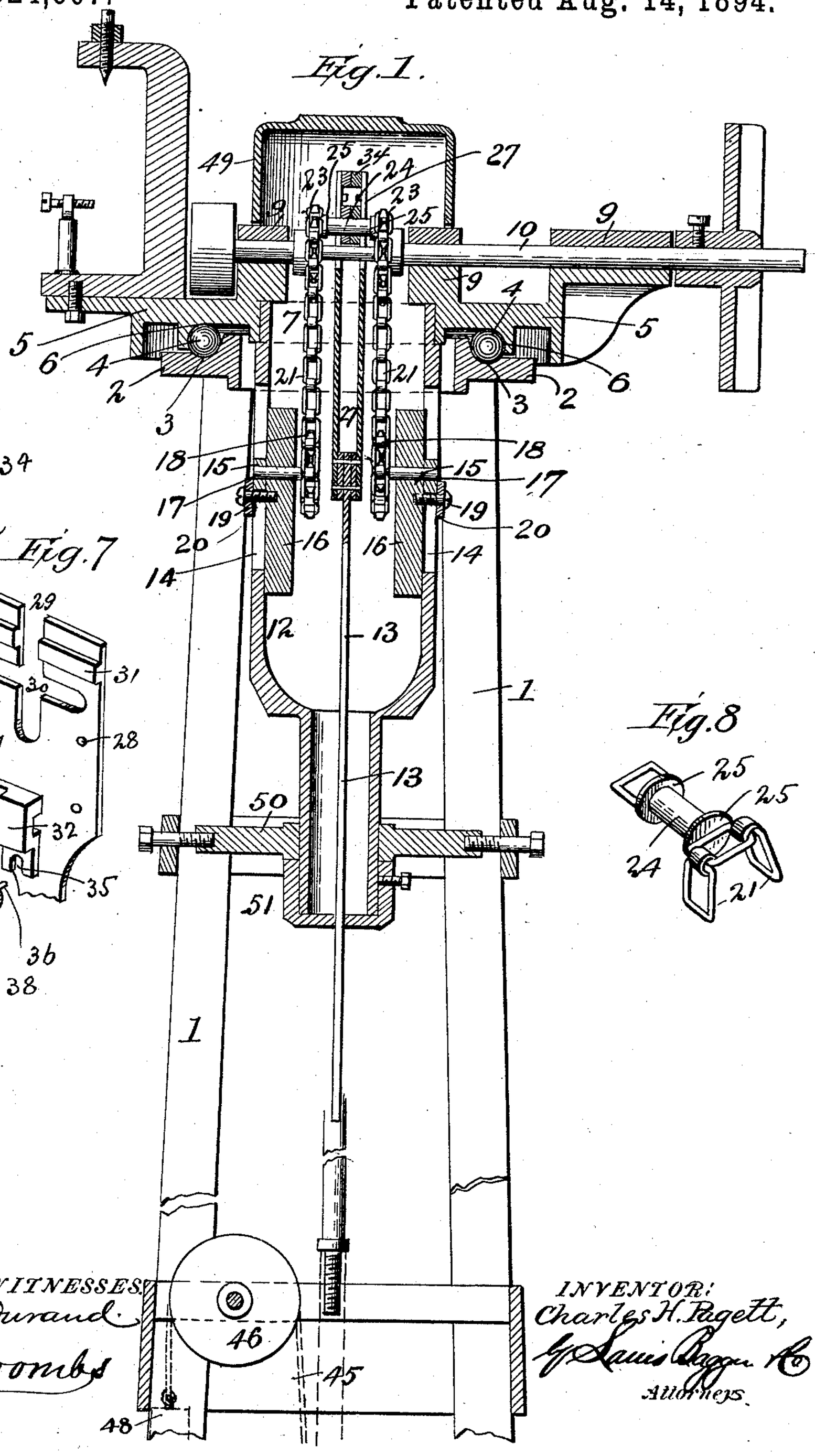

Fig. 7

Fig. 8

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

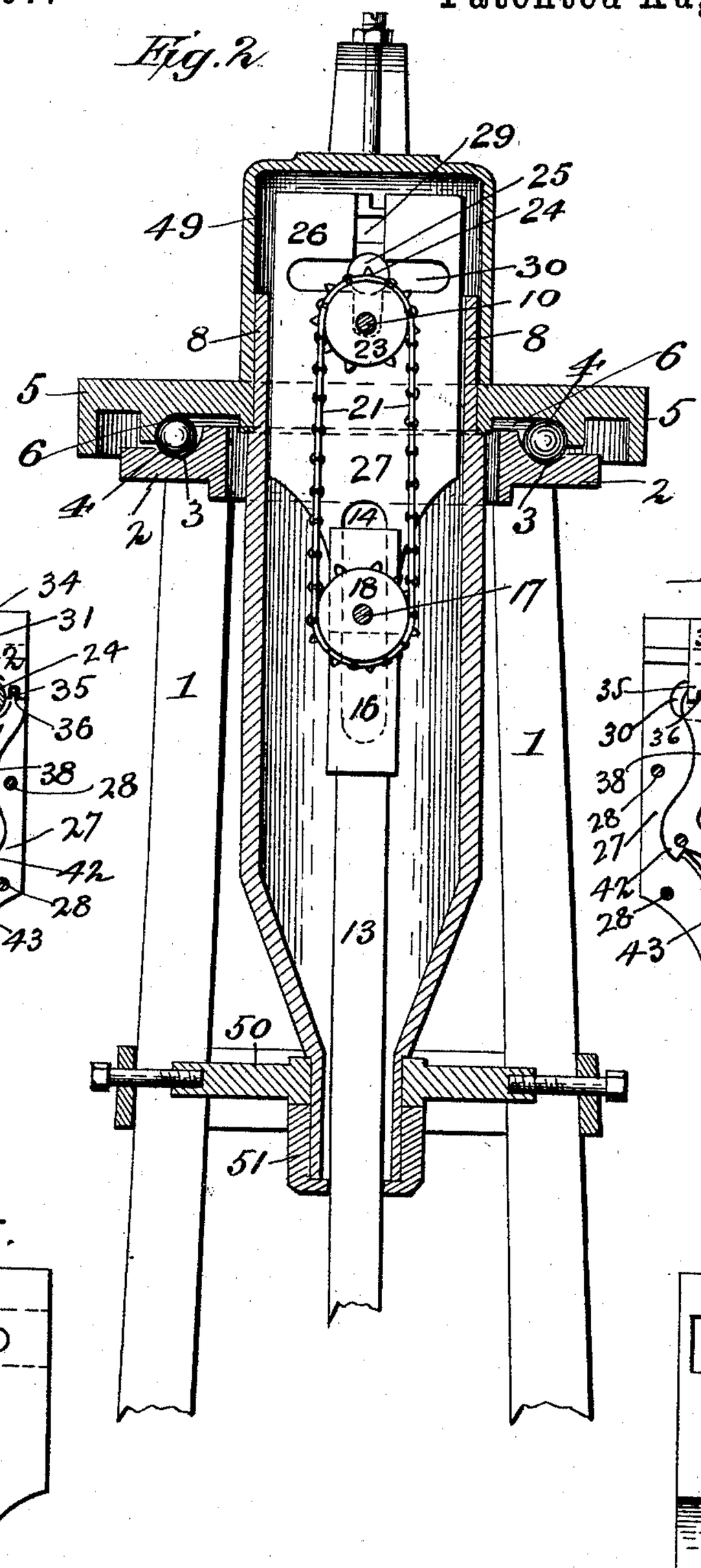


Fig. 3.

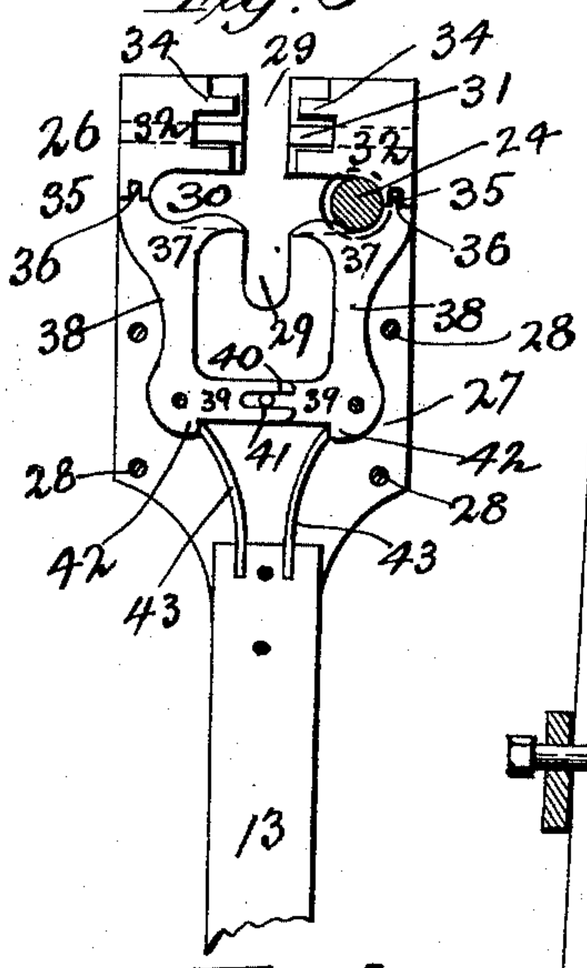


Fig. 4.

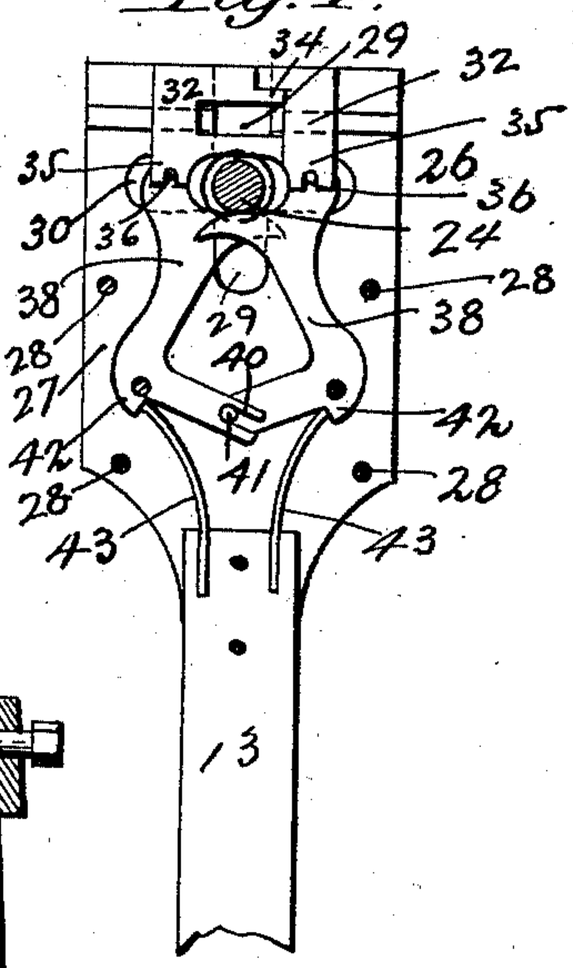


Fig. 5.

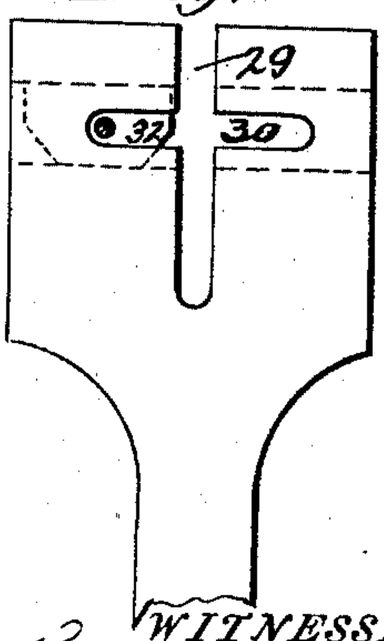
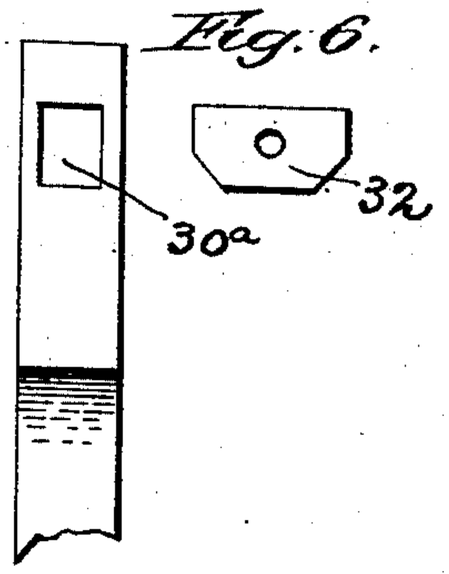


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES H. PAGETT, OF OXFORD, INDIANA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 524,607, dated August 14, 1894.

Application filed March 13, 1894. Serial No. 503,497. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. PAGETT, 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 Windmills; 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 or power shaft to the pump rod and also to provide the pump rod with a counterbalance to overcome the weight of the water carried by the plunger on the up-stroke of the pump rod.

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

In the accompanying drawings: Figure 1 is a sectional elevation of so much of a windmill as is necessary to illustrate my invention. Fig. 2 is a longitudinal sectional view of the cap, taken in a plane at a right angle to that of Fig. 1, and showing the pitman-head and means for reciprocating the same. Figs. 3 and 4 are detail sectional views showing the spring arms or bridges in different positions. Figs. 5 and 6 are detail views, showing a modified construction of pitman and bridge. Fig. 7 represents detail perspective views of the pitman-head, the bridges and the elbow-levers for actuating the bridges. Fig. 8 is a detail perspective view of the wrist-pin.

In the said drawings the reference numeral 1 designates the tower which may be of any ordinary construction, provided at its upper end with a ring 2, securely fixed thereto and formed on its upper side with an annular groove 3, to receive anti-friction balls 4, which form a bearing for the cap-plate 5, formed with a groove 6, corresponding with groove 3. This cap-plate is formed with a central aperture 7, and is also provided with boxes 9, 9, 9, in which is journaled the driving or power shaft 10. The driving shaft is to be provided with the usual wind wheel and vane, but as they form no part of the present invention, they are not illustrated in the drawings.

Secured to the under side of the cap plate is a downwardly depending box or casing 12, having an opening in its lower end for the passage of the pitman 13, the lower end of which is connected with the pump rod. The said box or casing is provided with two diametrically opposite slots 14, in each of which is located a vertically sliding block 15, which is connected with a plate 16, provided with a stud 17, which forms a journal for a lower sprocket wheel 18. These plates 16 are provided with set screws 19 passing through the slots 14, and said screws with washers 20, by which the plates are held in place and prevented from vertical movement.

The numeral 18 designates two sprocket wheels journaled, as before stated on the studs 17, over which pass sprocket chains 21, also passing over upper sprocket wheels 23 secured to the driving shaft.

The numeral 24 designates a wrist pin formed with annular flanges 25, and secured at each end to the sprocket chains 21.

The numeral 26 designates a vertically reciprocating pitman head secured to the pitman 13. This pitman head consists of two rectangular metal plates 27, 27, secured together with an intervening space, by means of bolts or rivets 28. At their upper ends these plates are formed with aligned vertical slots 29, and with horizontal slots 30 intersecting the same. The slots 29 are for the passage of the driving shaft during the reciprocation of the pitman, while the slots 30 are engaged by the wrist pin so as to reciprocate the pitman head.

The operation is as follows: As the driving shaft is rotated by the wind wheel, the sprocket wheels 23, being correspondingly rotated cause the sprocket chains to be revolved. As the sprocket wheels revolve, the wrist pin which engages with the slots 30, will cause the pitman head to be raised or lowered as the case may be, until the end of the stroke, when the wrist pin will be shifted to the other side of the slot and the movement thereof be reversed, causing the pitman head to be reciprocated or alternately moved up and down, causing a corresponding move-

ment of the pitman and pump rod. For bridging over the slots 29, provided for the passage of the driving shaft during the upstroke of the pitman head, so as to prevent the wrist pin from being caught in said slots, I provide the following means: Secured to the upper ends of each of the plates 27, on the inner sides thereof, is a rectangular plate 31, which forms ways for horizontally movable bridges 32, having their inner ends cut away forming overlapping arms 34. Each of these arms on its under side is formed with two lugs 35, with which engages a pin 36, on the upper ends 37 of bell crank levers 38 pivoted to the plates 27. The horizontal arms 39, of these levers extend inwardly toward each other, and one is formed with a slot 40 and the other provided with a pin 41, engaging therewith, forming a slot and pin connection so that the movement of one lever will correspondingly move the other. These levers are also formed with lugs 42, with which engage springs 43, secured to the plates 27, the tendency of which is to force the upper ends of said levers and the bridges 32 inwardly or toward each other.

During the operation of the apparatus while the wrist pin is moving in a vertical plane it will lie at the outer end of slots 30, and bearing against the upper arm of one of the levers 38, will press it outwardly, causing the other arm to be correspondingly forced outward, and the bridges 32 connected therewith to recede from each other and the slots 29 opened for the passage of the driving shaft on the upstroke of the pitman head. When, however, the upper end of the pitman head passes the driving shaft and the wrist pin travels toward the opposite end of slots 30, the upper arms of the levers will be forced inwardly causing the bridges to approach each other and the arms thereof to overlap each other, bridging over the slots 39, so that the wrist pin can safely pass over the same. Upon reaching the opposite ends of slots 30, the arms and bridges will again be forced outwardly, opening slots 29.

In the modification shown in Figs. 5 and 6, in addition to the slots 29 and 30, the pitman head is formed with a horizontal recess 30^a and the pivoted spring bridges 32 dispensed with and a solid bridge 32^a, substituted therefor. This bridge works back and forth in the recess 30^a, which forms a way therefor. The wrist pin passes through this bridge, the ends projecting through and working in slots 30.

The numeral 45 designates a rope, passing over a sheave or pulley 46, secured to the tower. One end of this rope is provided with a weight 48 while the other end is secured to the pump rod. The object of this arrangement is to counterbalance the weight of the pump plunger and connections thereby rendering the operation of the apparatus more efficient.

As before stated the lower sprocket wheels with which the sprocket chains are connected can be adjusted vertically by loosening the set screws and moving the plates 16 carrying the journals 17 up or down. The object of this construction is to permit of the stroke of the pitman to be varied. By removing one or more of the links of the sprocket-chains and moving said sprocket wheels upward the stroke is shortened, while by adding links to said chains correspondingly adjusting the sprocket wheels the stroke is lengthened.

The numeral 49 designates a cap or housing supported by the cap plate 5.

The numeral 50 designates a bracket through which the lower end of the box or casing passes and 51, a collar for connecting the same together.

While my invention is designed more especially for use in connection with wind-mills, it may be employed in machinery in general for converting rotary into reciprocating motion.

Having thus described my invention, what I claim is—

1. The combination with the driving shaft, the upper sprocket wheels, the sprocket chains lower sprocket wheels, and the wrist pin, of the pitman head having intersecting vertical and horizontal slots; substantially as and for the purpose specified.

2. The combination with the driving shaft upper sprocket wheels, the sprocket chains, the lower vertically adjustable sprocket wheels and the wrist pin, of the pitman head formed with intersecting vertical and horizontal slots; substantially as and for the purpose specified.

3. In a wind mill the combination with the cap plate provided with a downwardly depending box or casing, formed with slots and the driving shaft and the sprocket wheels secured thereto, of the blocks seated in said slots, the vertically movable plates having studs, the sprocket wheels journaled on said studs, the sprocket chains and wrist pin, the set screws and washers, the pitman head having intersecting vertical and horizontal slots; substantially as and for the purpose specified.

4. The combination with the driving shaft, the sprocket wheels secured thereto, the sprocket chains, the lower sprocket wheels and the wrist pin, of the pitman head consisting of the rectangular plates formed with intersecting vertical and horizontal slots, the horizontally movable bridges, the bell crank levers the upper ends of which are connected with said bridges and the horizontal arms connected by a pin and slot connection and the spring engaging with said levers; substantially as and for the purpose specified.

5. In a wind mill the combination with the cap plate, the downwardly depending box or casing having diametric slots, the blocks seated in said slots, the vertically movable plates connected therewith, the set screws and washers, the studs carried by said plates, the sprocket wheels journaled thereon, the driving shaft, the sprocket wheels secured thereto,

the sprocket chains and the wrist pin, of the pitman head consisting of the rectangular plates formed with intersecting vertical and horizontal slots, the horizontally movable bridges having overlapping inner ends and downwardly depending lugs, the bell crank levers pivoted to said head, the upper arms of which are provided with pins engaging with said lugs, and the horizontal arms connected together by pin and slot connection and the springs secured to the pitman head and engaging with lugs on said levers; substantially as described.

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

CHARLES H. PAGETT.

Witnesses:

J. G. CARNAHAN,

A. H. MAGUIRE.