

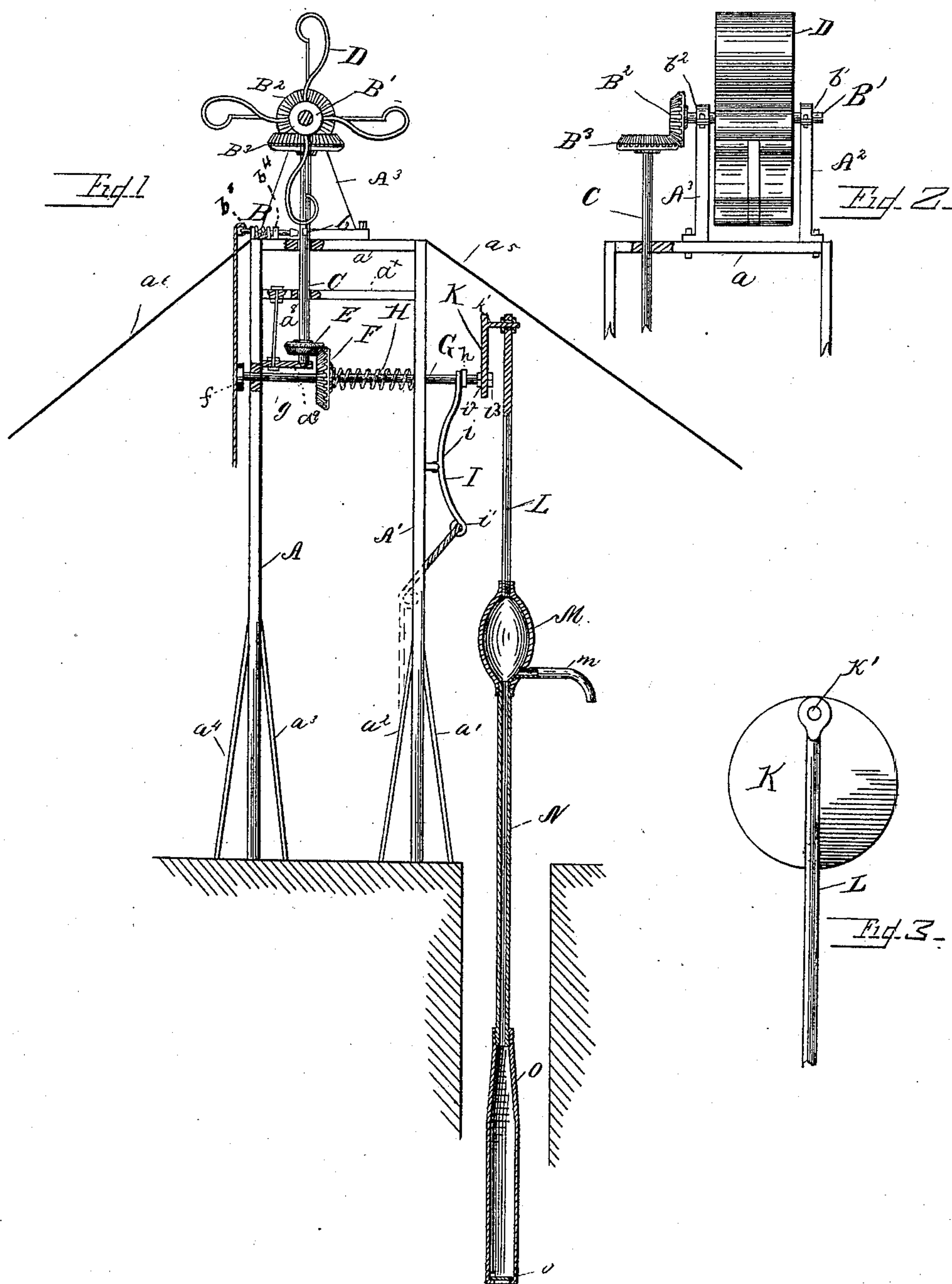
(No Model.)

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GEARING FOR OPERATING WINDMILL PUMPS.

No. 369,602.

Patented Sept. 6, 1887.



Witnesses

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UNITED STATES PATENT OFFICE.

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GEARING FOR OPERATING WINDMILL-PUMPS.

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To all whom it may concern:

Be it known that I, JOHN E. JORDAN, a citizen of the United States, residing at Rupee, in the county of Falls and State of Texas, have invented certain new and useful Improvements in Gearing for Operating Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in gearing for operating windmill-pumps, the object thereof being to raise water from wells by suitable mechanism connected with a fan, from which the power is communicated to the pump through said mechanism.

To this end the invention consists in the novel construction and arrangement of the several parts, as will be hereinafter more particularly described, and specifically pointed out in the claim.

In the accompanying drawings, to which reference is had, and which fully illustrate my invention, Figure 1 is a side elevation, partly in section, of my improved pump. Fig. 2 is an end view of the fan. Fig. 3 is a detail view of the eccentric-wheel and pitman or pump-connecting rod.

Similar letters of reference indicate corresponding parts in the several figures.

The letters A and A' represent two standards, to the top of which is secured a cross-piece, *a*, having a hole therein near the standard A, and a little below this cross-piece *a* is secured another cross-piece, *a'*, which is also provided with a hole, the holes in the two cross-pieces *a* and *a'* being in alignment with each other. Near one end of the cross-piece *a'*, and connected by means of a bolt, *a⁸*, is a stud or projection, *a⁹*, one end of which is rigidly secured to the inner side of the standard A, and the other or free end serves as a step for the lower end of a vertically-revolving shaft, C, which passes through the holes in the cross-pieces *a* and *a'*, previously referred to. To the cross-piece *a* is also rigidly secured two upright hangers, A² and A³, provided with bearings *b'* *b²*, within which revolves a horizontal fan-shaft, B', upon one end of which is secured a bevel gear-wheel, B², which meshes with another bevel gear-wheel, B³, secured to the upper end of the vertical shaft

C. The standards A A' are braced at their lower ends by means of inclined braces *a' a² a³ a⁴*, and at their tops or upper ends by guy-rods *a⁵ a⁶*, to more firmly hold them in place.

Upon the top and one corner of the framework just described is a locking device or spring-latch, B, the point of which enters an opening or notch, *b*, in the vertical shaft C, the upper end of which has the bevel gear-wheel B³ thereon, and which gears with the bevel gear-wheel B², revolving the fan D, secured to the horizontal fan-shaft B', aforesaid. The lower end of this vertical shaft C has secured thereon a bevel gear-wheel, E, which meshes with a similar but larger wheel, F, near one end of another and lower horizontal pump-carrying shaft, G. The rear end of this spring-latch B, which consists of a rod passing through holes in bearings *b³ b⁴*, secured to the corner of the frame-work at the top, has an eye therein, and the forward end or point of this rod or latch is squared off, so as to fit loosely but snugly in the hole *b*, corresponding therewith in the shaft C. Through the said eye one end of the rope is passed and secured to it, by means of which the latch B is operated, which locks or unlocks the shafts relatively with the gear-wheels, thereby stopping the gear-wheels and shafts in their revolution or allowing them to revolve.

The inner end of the horizontal shaft G, where the large bevel-wheel F is located, passes through the standard A, which forms a bearing for it to revolve in, and a stop or head, *f*, upon the end of the shaft prevents said shaft, when the gearing is shifted, from coming entirely out of the standard, only so much of the shaft as is necessary in shifting from each other the gearing being allowed to play in the standards A and A'. The other end of the horizontal shaft G passes through the standard A', which also forms a bearing in a like manner for this end of the shaft G, the shaft revolving within both standards.

Between the bevel gear-wheel F and the inner face of the standard A' is located a coiled or spiral spring, H, which is coiled around the horizontal shaft G for the purpose of throwing into gear the bevel-wheels E and F, preparatory to operating the pump, the shaft G itself being the only medium, in connection with a fulcrumed lever, presently to be re-

ferred to, by which the bevel-gears E and F are disconnected from each other when the pump is not in use.

Secure upon the shaft G, near the end which
5 passes through the standard A', is a collar or shoulder, *h*, against the inner side of which abuts and is normally held the upper end of a fulcrumed lever, I, having its fulcrum at *i*, and to the lower end of this lever I is an eye,
10 *j*, through which one end of a cord or rope is passed and made secure, the other end of the rope passing through a hole in the standard A', about midway its height, and depending therefrom, by means of which the fulcrumed
15 lever I is operated, which disconnects the gear F by throwing it out from the gear E. By pulling the rope or cord through the hole in the standard, that end of the lever I to which the cord is attached is pulled toward the standard
20 A' and the opposite end of the lever is consequently moved outward from the standard, which carries with it the shaft G and its attached pump or pump-rod L. To the extreme
25 outer end of the horizontal shaft G is eccentrically secured, by means of nuts *i*² *i*³, or any suitable means, a wheel, K, provided with a projection or eccentric-pin, *k*, by which the upper end of the pump-rod L is secured to
30 the wheel K upon the extreme outer end of the shaft G. To the lower end of this pump-rod L is rigidly secured the upper end of an air-chamber, M, provided with a spout, *m*, and to the lower end of this reservoir is permanently secured, or may, if desired, be cast
35 integral therewith, a pipe, N, and plunger O, the plunger O being considerably larger than the pipe N in diameter and tapering off near the top, where it connects with the pipe, so that it may conduct the water taken up by
40 the plunger from the well directly into the pipe with greater facility. In the bottom of the plunger O is pivoted a valve, *o*, the reservoir, pipe, plunger, and valve forming the pump, the valve *o* of which opens at every
45 downward stroke or impact of the plunger against the water and admits the sametherein, which is forced up the pipe and delivered by the same into the reservoir M.

The operation is as follows: The frame-work having been erected in position near a well 50 from which the water is to be raised or withdrawn and the operating mechanism being connected together in working order, the plunger is let down into the well, when the fan is then started by the wind, which revolves the re- 55 spective gearing, thus giving motion to the various shafts, thereby in turn revolving the eccentric wheel which carries the pump, giving it in its revolution a vertically-reciprocating motion up and down, and at every 60 downward stroke or movement of the plunger the valve therein opens from its impact against the water, thus admitting it within the plunger, when immediately upon the upward stroke or movement of the plunger the valve closes, 65 thus retaining the water therein until it passes up through the pipe and into the reservoir, where it is finally discharged through the spout into whatever receptacle may be there to receive it. 70

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The mechanism herein described, supported upon the frame-work, consisting of the horizontal fan-shaft B', journaled in the standards A² A³, vertical shaft C, lower horizontal pitman-shaft, G, said shafts being connected together by their respective gearing, the vertical shaft C having an orifice therein for the 75 reception of the end of the locking-latch B, the latch B, to which a pull-rope is secured, and the horizontal shaft G, having a spiral spring encircling the same, lever I, with its pull-rope *i*, eccentric K, and pitman L, whereby the gear- 80 ing is connected by means of spiral spring H upon the shaft G and disconnected by means of said shaft G, and the vertical shaft C is locked and unlocked by means of the latch B, substantially as described. 85 90

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. JORDAN.

Witnesses:

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