

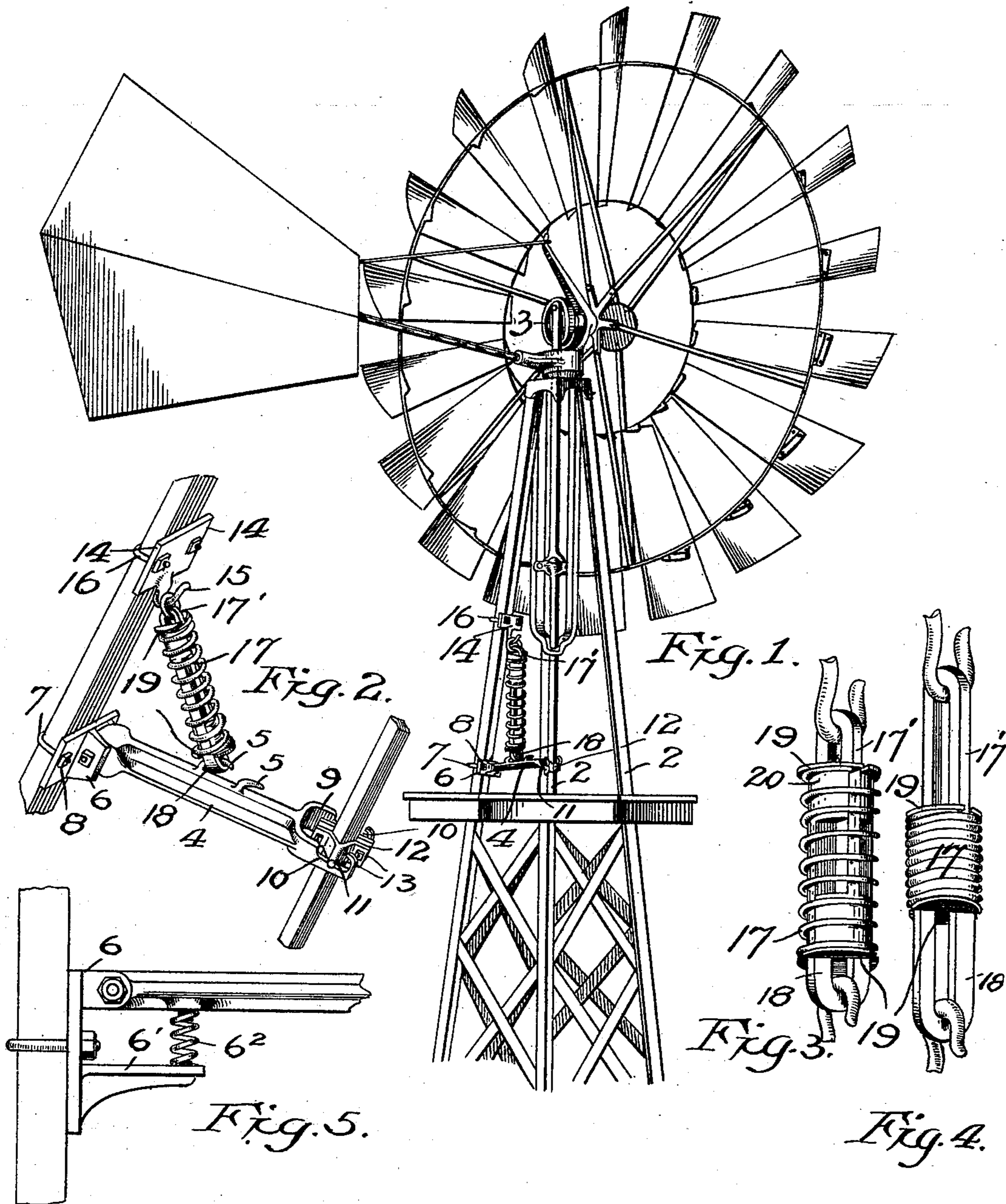
No. 622,842.

Patented Apr. 11, 1899.

J. H. DIETZ.
WINDMILL POWER EQUALIZER.

(Application filed Mar. 25, 1898.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH H. DIETZ, OF OWATONNA, MINNESOTA.

WINDMILL POWER-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 622,842, dated April 11, 1899.

Application filed March 25, 1898. Serial No. 675,167. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. DIETZ, of Owatonna, Steele county, Minnesota, have invented certain new and useful Improvements in Windmill Power-Equalizers, of which the following is a specification.

This invention relates to means for equalizing the power of windmills; and the object of the invention is to provide an equalizer which may be readily attached both to the tower and the pump-rod and the strength of which being overcome by the downward thrust of the pump-rod will aid or assist in raising the pump-rod with the load thereon.

The invention consists generally in the combination, with the windmill and its tower and pump-rod, of a lever pivoted upon the tower or frame and having a longitudinally-movable pivotal connection with said pump-rod, and a spring operating upon said lever to assist in raising said rod.

The invention will be more readily understood by reference to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of a windmill with a power-equalizer embodying my invention. Fig. 2 is an enlarged perspective view of the power-equalizer. Fig. 3 is an enlarged perspective view of the compression-spring that is employed. Fig. 4 is a similar view showing the spring compressed. Fig. 5 is a detail view of a modified form of the equalizer.

As shown in the drawings, 22 represent the corner posts or irons of the windmill frame or tower, on the upper end of which the works 3 are swiveled.

The equalizer comprises the bar or lever 4, provided upon its upper surface with one or more hooks 5 for the attachment of the spring. The lever is pivoted to the block 6, which block is provided with a staple 7, having threaded ends that are secured in the block by nuts 8, the staple encircling the post or corner-iron of the tower or frame to securely pivot the lever thereon. The free end of the lever is made in the form of a jaw or yoke 9, that is provided with the open slots 10, in which rest the trunnion arms or studs 11 of the clamp or block that is secured on the pump-rod. This clamp comprises the two blocks 12, provided with V-grooves to receive the angles

of the rod. Said blocks are secured together by clamping-bolts, and in this manner the trunnions or pivots 11 are arranged and held at right angles to the rod, bar, or lever 4. The jaws 9 are preferably provided with hooks 13 at the ends of the slots or notches 10; but these may be dispensed with. Above the pivot-block of the lever there is a block or plate 14, provided with an integral hook 15, and this block is secured upon the corner post or iron of the tower by a staple 16 similar to that used for the block 6. The strong spring shown is arranged between the hook 15 and one of the hooks 5 on the lever 4. This spring is preferably of the construction shown in Figs. 1 to 4, comprising an open coil 17, that is compressed between the heads, arranged upon the draft rods or loops 17' and 18. These loops extend within the coil the length thereof and are provided with the outwardly-turned heads 19, that lap over the end coils of the spring. The draft rods or loops are also preferably provided with the semicylindrical enlarged parts 20, which prevent the clamping or binding of the spring and limit the closing movement thereof. The two links or loops are arranged at right angles to one another and slide freely through one another, and by them the center or middle part of the spring is prevented from buckling. The ends of the rods or links are looped or caught over the hooks upon the tower and the lever, respectively. This spring is of sufficient strength to overcome the force that is exerted by the wheel in depressing the rod, and therefore upon the upper stroke of the rod the spring strongly aids the mill in raising the rod and the load thereon. The compression-spring employed is not apt to break and is far more durable than any tension-spring that might be employed. Furthermore, if the spring breaks the lever is not allowed to drop down, as the ends or heads of the draft-rods will not pass one another in the spring.

In place of the spring shown in Figs. 1 and 4 I may use the very simple contrivances shown in Fig. 5. In this device the block 6, on which the lever is pivoted, is enlarged and is provided with the bracket 6', between which and the lower part of the lever I arrange a short strong compression-spring 6². I prefer, however, to employ the device first explained,

owing to the adjustability thereof and the fact that less strain is exerted at a single point on the post or corner-iron of the tower. The device is easily applied to any windmill, being raised to a point upon the corner iron or post opposite which the lever will reach to the pump-rod. The slots or bearing-surfaces 10 of the lever 4 allow the slipping of the pivot pins or trunnions 11 and prevent the buckling of the pump-rod.

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

1. A windmill power-equalizer, comprising the lever 4, provided at one end with the pivot-block adapted for attachment to the corner-post of the tower, and having a jaw or yoke at its opposite end, in combination, with a two-part clamp for attachment to the pump-rod, and provided with the diagonal studs or trunnions resting on said yoke, and a spring acting on said lever, substantially as described.

2. In a windmill power-equalizer, the combination, of the blocks 6 and 14, and means for attaching them to a windmill frame or tower, with the lever 4 pivoted upon the block 6 and having a pump-rod bearing or attachment, the draft-links, attached to said plate 14 and to said lever, and the compression-spring provided between opposite ends of said links, substantially as described.

3. The combination, in a windmill power-equalizer, of the pivoted lever having a pump-rod bearing or attachment, with an adjustable block or hook, the links or loops 17 connecting the latter with said lever, said links having the heads 19, and the compression-spring arranged between said heads, substantially as described.

4. The combination, of the windmill-tower, with the blocks 6 and 14, adjustable thereon, the lever 4 pivoted upon said block 6 and pro-

vided with the yoke at its free end, the trunnion block or clamp, the pump-rod whereto the same is attached, the links or loops 17 slidable within one another and provided with the heads 19, the compression-spring arranged on said links or loops and between the heads thereof, and the spring device thus constituted by said links and spring being adjustable upon said lever and attached to said block 14, substantially as described.

5. The combination, of the lever 4, with the attachment-blocks, in one of which said lever is pivoted, the compression-spring, and the opposed links or loop therein, the heads upon said lever for the attachment of the spring thereto, said lever provided with a yoke having retaining-hooks, and the two-part trunnion-block adapted to be secured upon the pump-rod of the windmill, all substantially as and for the purpose specified.

6. In a windmill power-equalizer, the combination, with the tower, of the pump-rod, the blocks arranged upon the tower, the lever pivoted in one of said blocks and having a longitudinally-movable pivotal connection with said pump-rod at its free end, and a spring arranged between said lever and the other block upon the tower to lift the pump-rod, substantially as described.

7. In a windmill power-equalizer, the combination, with the lever 4, provided with two or more hooks 5, a pivot-block for said lever, the pump-rod, block or clamp having slidable bearings upon said lever, and the lifting-spring for attachment to said lever, substantially as described.

In testimony whereof I have hereunto set my hand, this 22d day of March, 1898, at Minneapolis, Minnesota.

JOSEPH H. DIETZ.

In presence of—

C. G. HAWLEY,
M. E. GOOLEY.