

No. 614,681.

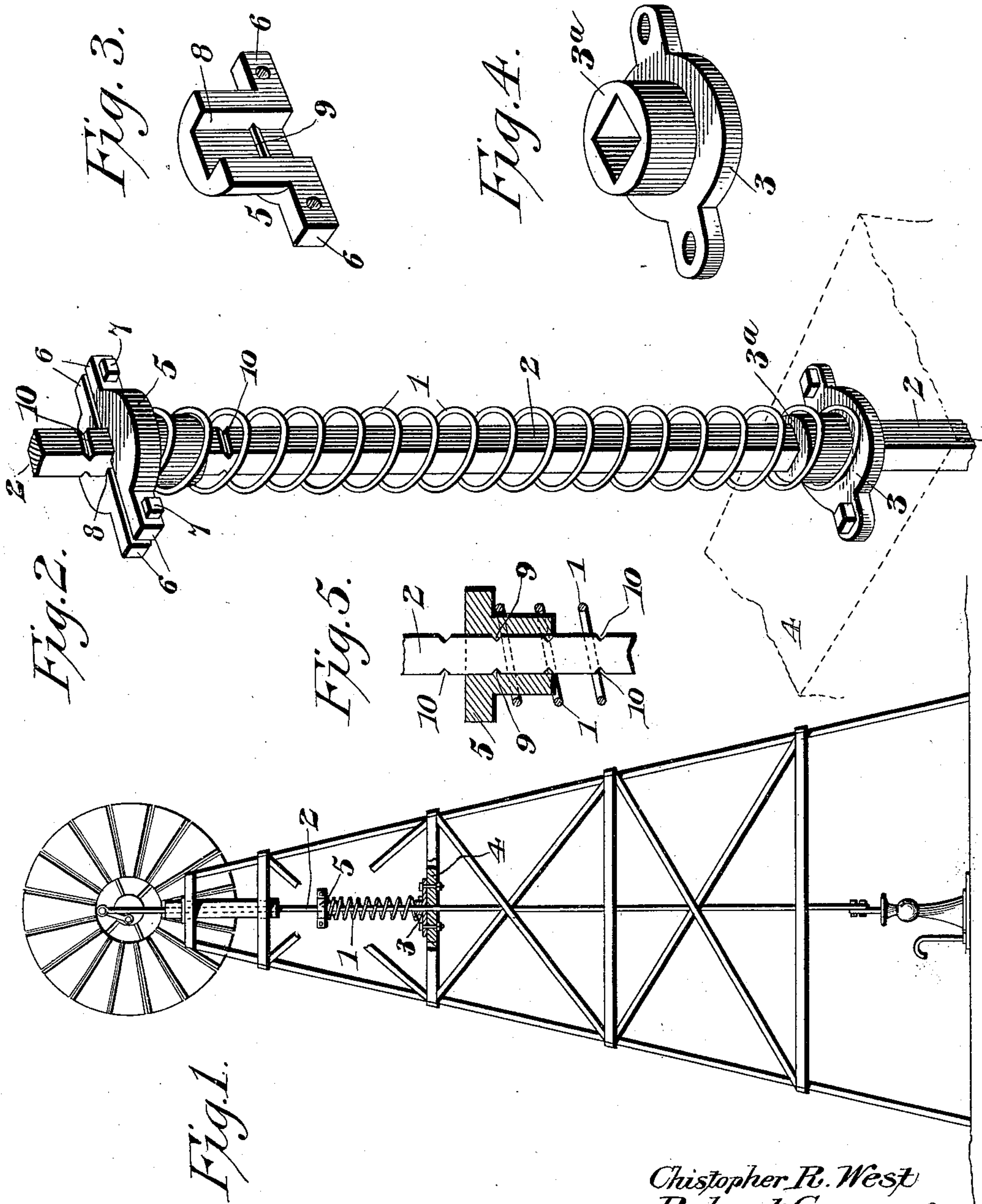
Patented Nov. 22, 1898.

C. R. WEST & R. COWAN.

ATTACHMENT FOR PUMPS.

(Application filed June 30, 1898.)

(No Model.)



Christopher R. West  
Robert Cowan  
Inventors

Witnesses

Jas. L. McLaughlin

By their Attorneys,

*[Signature]*

*Chas. Snow & Co.*



# UNITED STATES PATENT OFFICE.

CHRISTOPHER R. WEST AND ROBERT COWAN, OF PRIMGHAR, IOWA.

## ATTACHMENT FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 614,681, dated November 22, 1898.

Application filed June 30, 1898. Serial No. 684,868. (No model.)

*To all whom it may concern:*

Be it known that we, CHRISTOPHER R. WEST and ROBERT COWAN, citizens of the United States, residing at Primghar, in the county of O'Brien and State of Iowa, have invented a new and useful Attachment for Pumps, of which the following is a specification.

Our invention relates to attachments for pumps, and particularly to the pump-rods of windmill pumping mechanisms and the like, the object in view being to provide an equalizing device whereby the downstroke of the pump-rod will exert approximately as much resistance to the movement of the operating mechanism as the upward movement of said rod to produce uniformity in the rotation of the wind-wheel, and thus adapt the apparatus to be operated by a comparatively light wind.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of an equalizing device constructed in accordance with our invention applied in the operative position to a windmill pump-rod. Fig. 2 is a detail view in perspective of the same. Fig. 3 is a detail view of one of the members of the adjustable collar. Fig. 4 is a detail view of the stationary collar. Fig. 5 is a detail sectional view of the adjustable collar and the contiguous portions of the equalizing-spring and pump-rod.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The equalizer embodying our invention consists, essentially, of an expansion coiled spring 1, arranged exteriorly of and concentric with a pump-rod 2 of the ordinary or any preferred construction, said spring being interposed between a fixed collar 3, preferably bolted to a frame member 4 of the windmill-tower, and an upper collar 5, which is adjustably secured to the pump-rod. The stationary or lower collar 3 consists of a plate provided with suitable bolt-openings and an up-  
standing hub 3<sup>a</sup>, around which the lower end of the equalizing-spring fits to prevent lateral displacement thereof and contact with the

pump-rod, which obviously reciprocates in the bore of said collar. The upper collar is of sectional construction and comprises separable members, of which one is illustrated in detail in Fig. 3, having radial extensions or ears 6, provided with registering bolt-openings engaged by adjusting-bolts 7, the contiguous faces of the collar members being normally spaced apart to allow for inward adjustment to secure the desired clamping action upon the pump-rod to lock the collar firmly at the desired adjustment thereon. In order to increase the efficiency of the engagement of said adjustable collar with the pump-rod, we preferably provide the members of the collar, on the bottoms of the registering channels 8 thereof, with transverse ribs or detents 9, which are adapted to engage transverse depressions or grooves 10, formed in the opposite side surfaces of the pump-rod. In other words, the adjustable collar and pump-rod are provided with interlocking faces, of which the collar members preferably carry the projections, while the pump-rod is provided with the depressions to enable the collar members to be adjusted upon the pump-rod to secure the desired tension of the equalizing-spring and to be secured effectively at the desired adjustment by the simple tightening of the bolts 7, which serve as the connection between the collar members. It will be understood that this adjustment of the equalizing-spring is designed to compensate for different weights of pump-rods and depths of wells, diameters of cylinders, &c. Under ordinary circumstances the downstroke of a pump-rod, as when no load is being carried, is facilitated by the weight of the pump-rod, and hence little resistance is offered to the movement of the wind-wheel, whereas during the upward stroke of the pump-rod the wind-wheel must overcome the resistance due not only to the weight of the column of water, oil, or other contents of the pump-cylinder, but the weight of the pump-rod and attachments. By employing an equalizing-spring of sufficient tension to partly counterbalance the resistance during the upward movement of the pump-rod we not only assist the wind-wheel in the elevation of the pump-rod and the column of liquid, but resist the down-



ward movement thereof, and thus it is possible to accurately equalize the resistance offered during the up and down strokes of the pump-rod, (increasing the downstroke proportionately to the reduction of the upstroke,) and thus enable the wind-wheel to operate with a much less wind-pressure than would be necessary under conditions wherein all the resistance is during the upstroke of the pump-rod.

The construction embodying our invention is simple and may be applied with facility to the pump-rod of any windmill pumping mechanism now in common use without altering the construction of the usual pumping mechanism.

Having described our invention, what we claim is—

1. The combination with a windmill pump-rod, of an equalizing-spring coiled concentrically with the pump-rod, a stationary seat or collar for the lower end of the spring, a sectional upper collar fitted upon the pump-rod to constitute a seat for the upper end of said spring, and having its members provided with faces interlocked with contiguous faces of the pump-rod, and means for relatively adjusting the members of said upper collar to cause the interlocking engagement of said faces, substantially as specified.

2. The combination with a windmill pump-rod, of an equalizing-spring coiled concentrically with the pump-rod, a stationary seat or collar for the lower end of the spring, a sectional upper collar fitted upon the pump-

rod to receive the upper end of the spring, said upper collar comprising separable members, having registering channels provided at their bottoms with transverse projecting ribs, to engage opposite depressions or grooves in the side surfaces of the pump-rod, and adjusting-bolts connecting the collar members to vary the relative positions thereof, substantially as specified.

3. The combination with a windmill pump-rod, of an equalizing-spring coiled concentrically with the pump-rod, a lower stationary seat for the spring consisting of a plate provided with means for attachment to a supporting-frame, and having a centrally-bored hub of an exterior diameter to fit within the contiguous end of said spring and hold the latter out of contact with the pump-rod, a sectional upper collar fitted upon the pump-rod and engaged with the upper end of said spring, said upper collar having separable members arranged in contact with opposite side surfaces of the pump-rod, and adjusting devices connecting said members to secure them in frictional contact with the pump-rod, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CHRISTOPHER R. WEST.  
ROBERT COWAN.

Witnesses:

F. C. WHEATON,  
SUSIE MORTON.