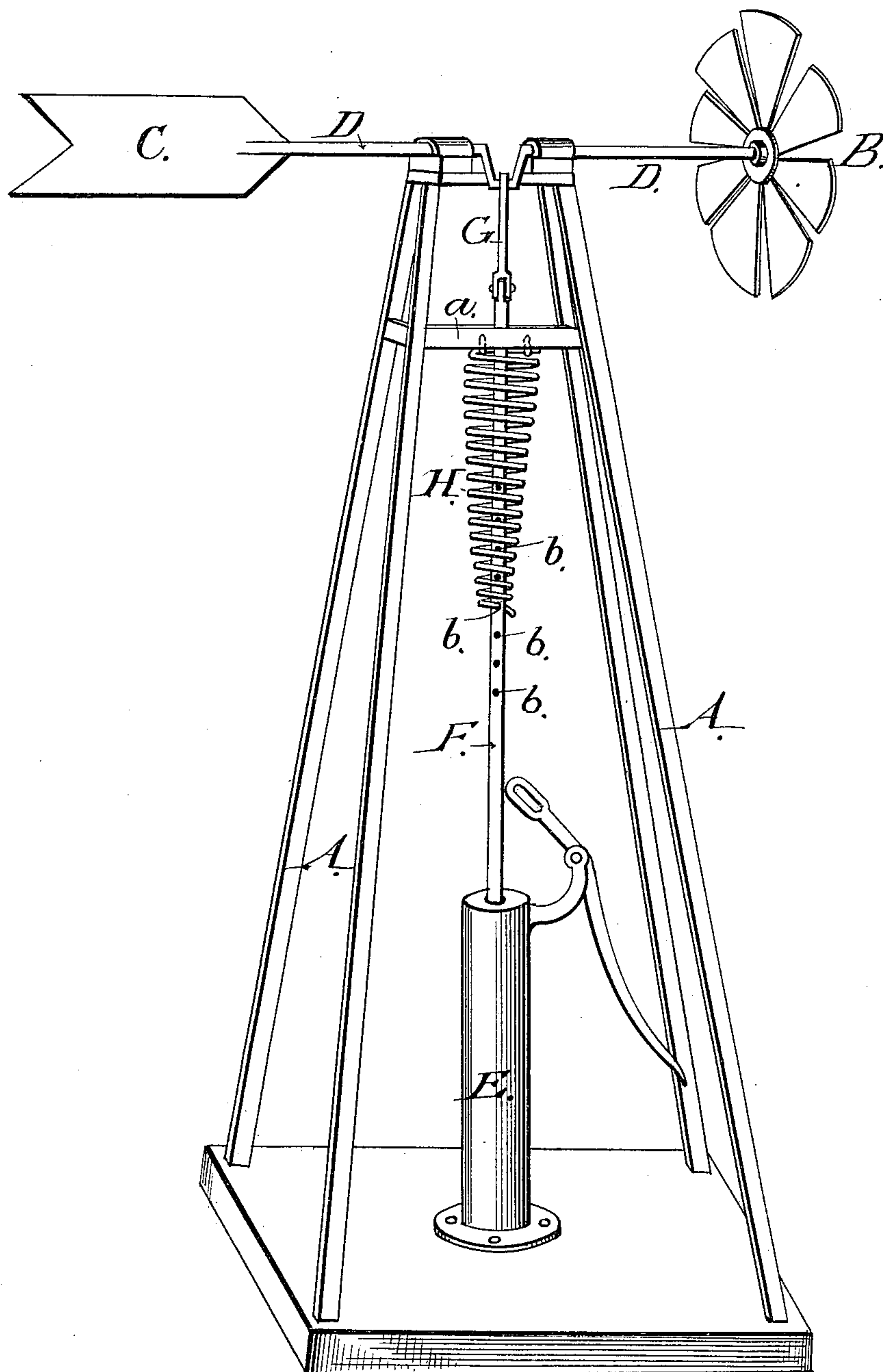


(No Model.)

S. BARR.  
PUMP ROD ATTACHMENT.

No. 377,225.

Patented Jan. 31, 1888.



Witnesses  
*T. W. Fowler,*  
*W. H. Patterson.*

Inventor  
*Samuel Barr;*  
By his Attorneys  
*A. H. Evans & Co.*

# UNITED STATES PATENT OFFICE.

SAMUEL BARR, OF McCAUSLAND, IOWA.

## PUMP-ROD ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 377,225, dated January 31, 1888.

Application filed June 20, 1887. Serial No. 241,862. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL BARR, a citizen of the United States, residing at McCausland, in the county of Scott and State of Iowa, have  
5 invented certain new and useful Improvements in Pump Attachments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure represents my improvement applied to a  
10 piston-rod connected with a windmill.

My invention relates to pumps; and it consists in a spring attached at one end to a suitable frame-work and at the opposite end to a  
15 piston-rod, whereby said spring accelerates the movements of said piston, as I shall hereinafter fully describe and claim.

To enable others skilled in the art to make and use my invention, I will describe its construction and indicate the manner in which I  
20 have carried it out.

In the said drawing I have illustrated my invention in connection with a windmill, wherein A represents the tower or frame; B, the wheel; C, the vane; D, the crank-shaft; E, the pump; F, the piston-rod, and G the  
25 pitman connecting the crank-shaft with the piston-rod. These features are all of any well-known construction, and are to be found in  
30 most of the windmills of the present time.

To a cross-bar, *a*, or to any suitable part of the frame or tower, one end of a spring, H, is rigidly secured, the said spring being coiled around the piston-rod F, and having its lower  
35 end secured in any one of a series of holes, *b*, formed therein, whereby said spring is distended or compressed by the movements of the rod.

As windmill-pumps are commonly constructed the lift is performed by a simple crank. The first half-turn of the crank draws the piston-rod up and elevates the water with a  
40 lifting force of, say, fifty pounds. At the next half-turn the piston-rod is not only idle, so far as effective work is concerned, but its descent is accelerated by the gravity of the parts hung  
45 to the crank—that is to say, the crank goes

down idle and comes back lifting, say, fifty pounds, and so on indefinitely. The wind must exert a force of fifty pounds or the pump  
50 will not be operated.

My improvement consists in the application to the piston-rod of a spring so arranged that in the descent of the crank the spring is distended to a tension of, say, twenty-five pounds. 55  
When the crank commences to lift the water the spring recoils, and reaction leaves but twenty-five pounds upward lift for the crank. I am thus enabled to equalize the power necessary to lift a given amount of water by causing the spring to re-exert a force equal to half  
60 the full amount raised. It is thus apparent that a windmill-pump, if well constructed in this manner, will start and perform its required work with, practically speaking, one-half the  
65 continuous wind force heretofore required, the cardinal point of my invention being that the full active force of an entire revolution of a crank is utilized on a piston-rod in one direction only, and the production of a consequent equalization of stress on the machinery  
70 throughout. The series of holes *b* in the piston-rod are for the purpose of increasing or decreasing the tension of the spring. This invention is applicable to all forms of lift-  
75 pumps; but I prefer to use it in connection with a windmill, as herein indicated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 8c

The combination, with the frame A, having the cross-bar *a*, the windmill crank-shaft and the pitman G connected therewith, of the piston-rod F, connected with said pitman and provided with a series of holes, *b*, and a coiled  
85 spring surrounding said rod, having one end fixed to the cross-bar and the opposite end adjustably secured in said holes, as herein described.

SAMUEL BARR.

Witnesses:

R. P. BARR,  
S. S. STOUGH.