

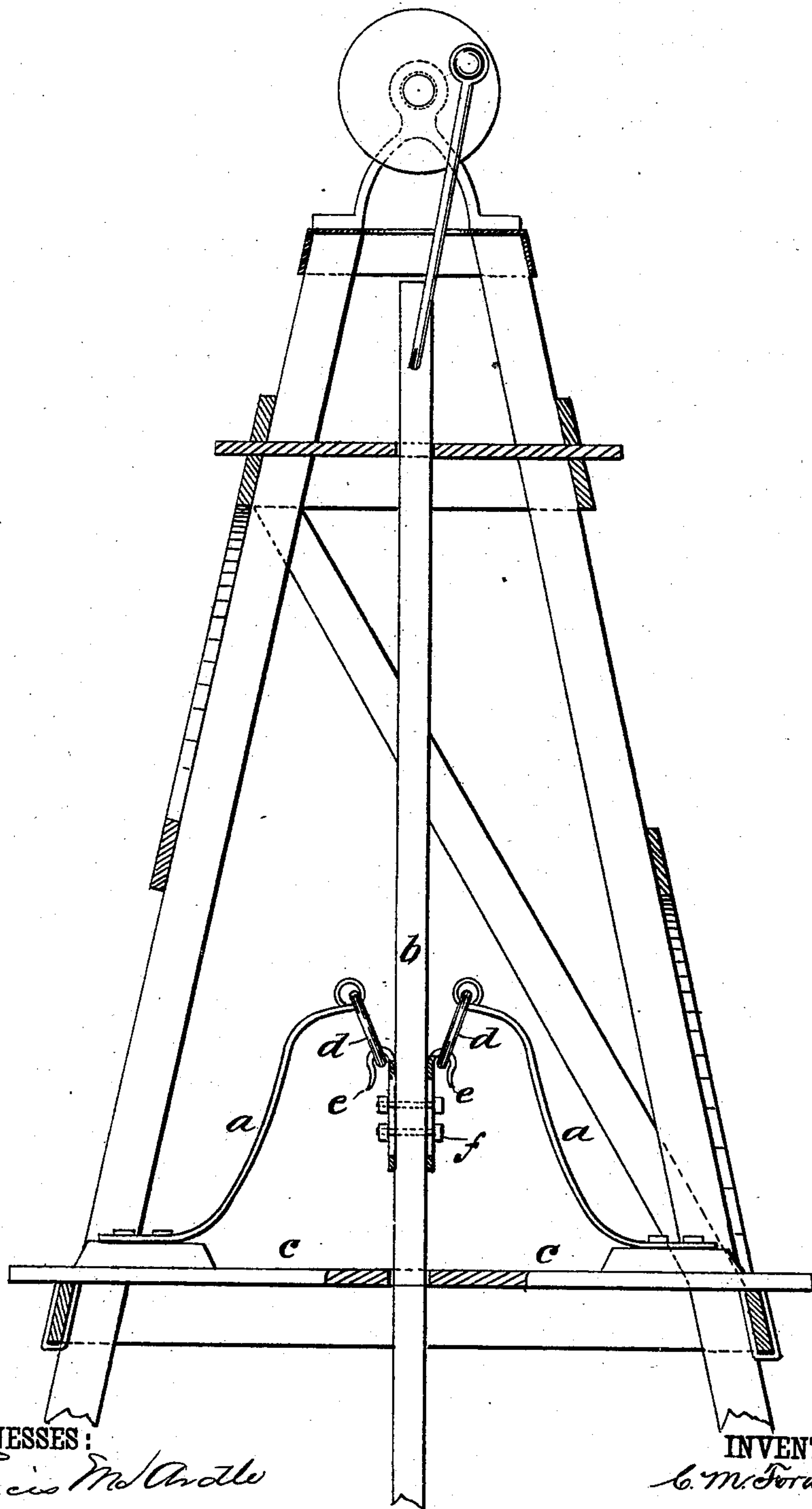
(No Model.)

C. M. FORD.

WINDMILL.

No. 272,226.

Patented Feb. 13, 1883.



WITNESSES:

Francis McArthur
C. Sedgwick

INVENTOR:

C. M. Ford

BY

Mum & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES M. FORD, OF BELLEVUE, OHIO.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 272,226, dated February 13, 1883.

Application filed December 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. FORD, of Bellevue, in the county of Huron and State of Ohio, have invented a new and useful Improvement in Devices for Converting Rotary into Reciprocating Motion, of which the following is a full, clear, and exact description.

My invention relates to devices for converting rotary into reciprocating motion, and is applicable to windmills employed for working lift-pumps or other devices by means of a vertically-reciprocating connecting-rod; and it consists of an improved arrangement of spring counterbalance attachment for effecting uniformity of the action of the mill, all as hereinafter fully described.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure represents a sectional elevation of the tower of a windmill, showing the application of my improved counterbalancing attachment to the connecting-rod.

I propose to apply a couple of springs, *a*, of any approved form or construction, substantially such as represented in the drawing, to the connecting-rod *b*, by connecting them to opposite sides of said rod, and fastening them to the cross-piece *c* of the tower in such a manner that said springs will be subjected to the requisite stress on the downstroke of the connecting-rod to resist the tendency of the gravity of the rod to give undue impetus in that direction, and to lift on the return-stroke an amount equal to the resistance of the gravity on the upstroke, thus effecting uniformity of action, whereby the mill will run steady and with much less wear, besides being able to work in lighter winds than it otherwise could.

I propose to connect the springs to the pump-rod by links *d* and hooks *e*, or any equivalent device, making the hooks adjustable on the rod by means of long slots for the bolts *f*, or otherwise, to enable the springs to be adjusted suitably for tension. Generally, it will be best to set the connections so that the stress will begin when the rod has moved about half its downstroke; but the point where the stress should begin will vary with different conditions.

A single spring attached to one side of the connecting-rod would serve very well, except for the side draft it would make. I therefore propose to employ two for balancing the side draft of each by the other.

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

1. The combination of a pair of counterbalancing springs, *a*, with the vertically-reciprocating connecting-rod, said springs being attached to cross-piece *c* and connected to said rod, substantially as described.

2. The combination of a pair of counterbalancing-springs, *a*, links *d*, and hooks *e* with the vertically-reciprocating connecting-rod *b*, substantially as described.

3. The combination of a pair of counterbalancing-springs, *a*, links *d*, and hooks *e* with the vertically-reciprocating connecting-rod *b*, said hooks being adjustable on said rod, substantially as described.

CHARLES M. FORD.

Witnesses:

N. A. BARNES,
W. L. ROBINSON.