

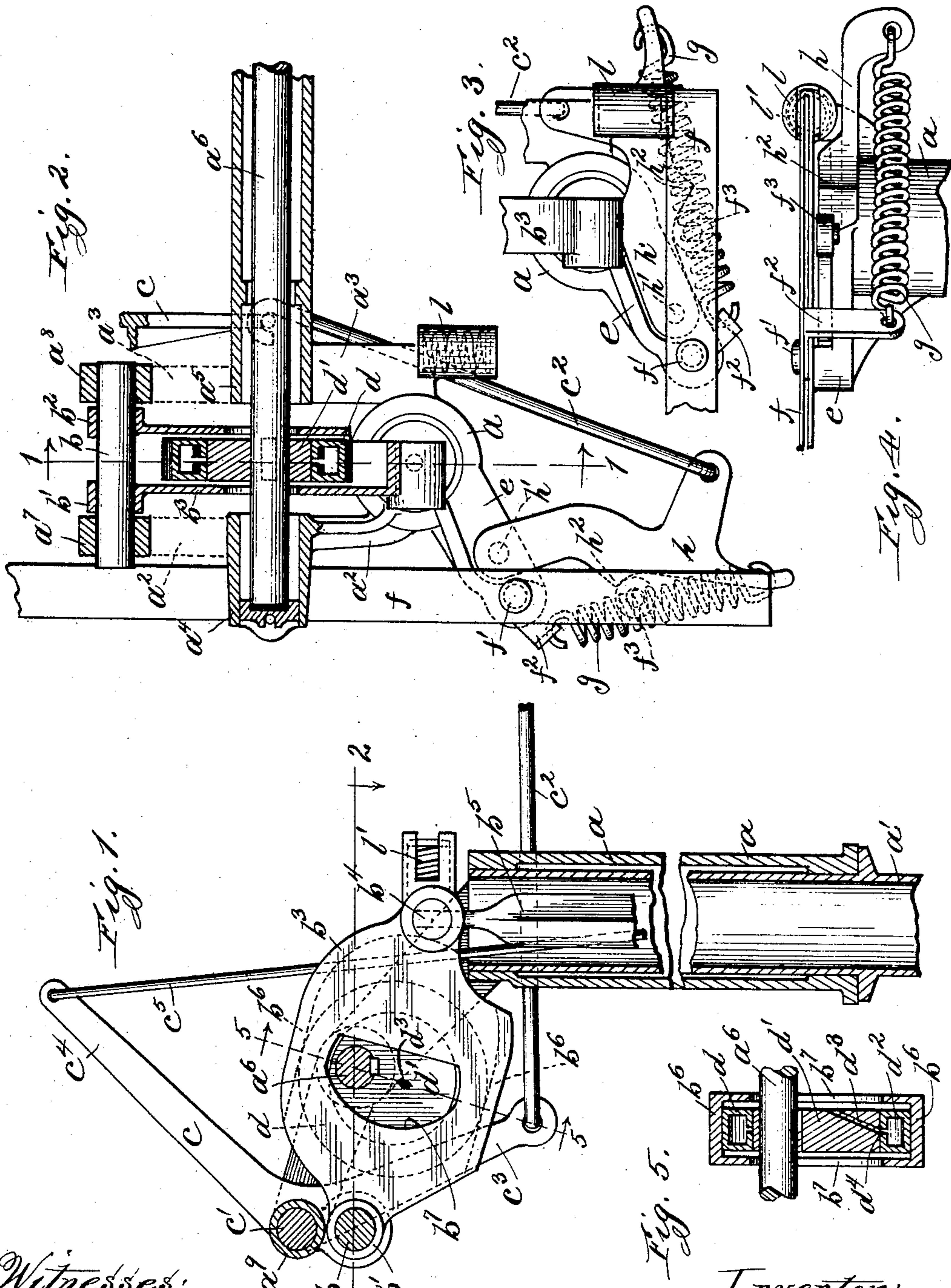
No. 765,036.

PATENTED JULY 12, 1904.

LA VERNE W. NOYES.  
WINDMILL.

APPLICATION FILED DEC. 27, 1898.

NO MODEL.



Witnesses:

V. J. Jacker.

M. R. Rockford

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# UNITED STATES PATENT OFFICE.

LA VERNE W. NOYES, OF CHICAGO, ILLINOIS.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 765,036, dated July 12, 1904.

Application filed December 27, 1898. Serial No. 700,360½. (No model.)

*To all whom it may concern:*

Be it known that I, LA VERNE W. NOYES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Windmills, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a windmill, my object being to provide an improved form of furling device for throwing the windmill into and out of the wind.

In Letters Patent No. 608,657, granted August 9, 1898, to Robert M. Dyer and myself, a structure is shown and claimed wherein a coiled spring is stretched between the end of the furl-lever and a point on the tail-bone near the sail, the furl-lever and the tail-bone being arranged to be locked together when the mill is out of the wind. The present invention relates to an improvement and modification of this construction whereby while preserving the feature of interlocking the tail-bone and the lever the structure may be rendered more compact. Accordingly the tail-bone is prolonged or extended beyond the pivot, and the pivoted furl-lever is arranged to interlock with the extended portion of the tail-bone, while the spring is stretched between the end of the furl-lever and a point on the tail-bone on the opposite side of the pivot from that of the sail, being preferably secured to a lateral arm carried on the tail-bone. The furling mechanism is thus located in a small space and is rendered compact and is situated wholly beyond the pivot of the tail-bone, while effectively operating to throw the mill into and out of the wind and serving to lock the tail when the mill is out of the wind.

I do not claim herein the driving mechanism illustrated for operating the pump-rods or reciprocating parts, as the same forms the subject-matter of claims in another application.

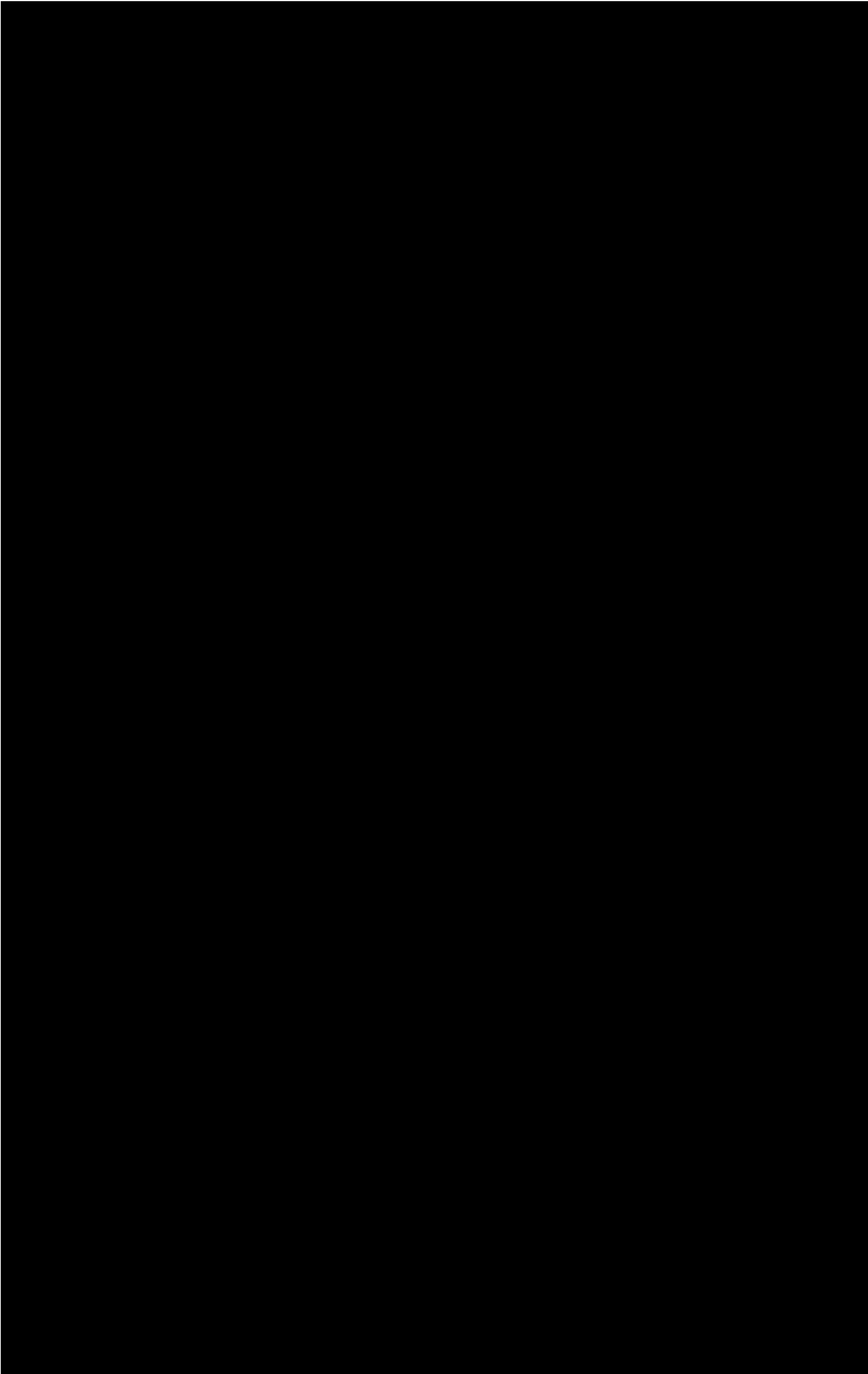
I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view in elevation, partially in section, of the structure of my invention.

Fig. 2 is a sectional view on line 2 2, Fig. 1. Fig. 3 is a plan view of the furling device when the mill is in the wind. Fig. 4 is a view thereof in elevation. Fig. 5 is a sectional view on line 5 5, Fig. 1.

Like letters refer to like parts in the several figures.

The turn-table *a* of the mill is mounted to rotate about the standard *a'* of the tower in any preferred manner and carries a pair of laterally-extending arms *a*<sup>2</sup> *a*<sup>3</sup>, which support at intermediate portions the bearing-sleeves *a*<sup>4</sup> *a*<sup>5</sup>, in which the wheel-shaft *a*<sup>6</sup> is journaled. The arms *a*<sup>2</sup> *a*<sup>3</sup> carry at the ends the bearing-sleeves *a*<sup>7</sup> *a*<sup>8</sup>, within which the journal-pin *b* is mounted, and the arm *a*<sup>3</sup> carries in addition a bearing-sleeve *a*<sup>9</sup>, in which the pivotal pin *c* of the bell-crank lever *c* is journaled. Upon the journal *b* the ends *b'* *b*<sup>2</sup> of a casing *b*<sup>3</sup> are journaled, whereby the casing may be rocked back and forth, the casing carrying at the opposite end a journal-pin *b*<sup>4</sup>, to which the pump-rod *b*<sup>5</sup> is attached, whereby as the casing *b*<sup>3</sup> is rocked to and fro the pump-rod *b*<sup>5</sup> is raised and lowered. At the upper and lower edges of the casing *b*<sup>3</sup> transverse walls *b*<sup>6</sup> *b*<sup>6</sup> are provided adjoining the side walls of the casing, and these walls *b*<sup>6</sup> *b*<sup>6</sup> serve as guideways or tracks along which the annulus or ring *d* is adapted to roll, said annulus encircling an eccentric or cam *d'*, mounted upon the wheel-shaft *a*<sup>6</sup>. As the wheel-shaft rotates, the eccentric *d'* moving within the annulus *d* causes the latter to roll along the guide-wall *b*<sup>6</sup>, thereby raising the pump-rod until in the further movement of the eccentric the annulus is caused to engage and roll along the lower guide-wall *b*<sup>6</sup>, thus lowering the pump-rod. Openings *b*<sup>7</sup> *b*<sup>7</sup> are provided in the side walls of the casing to permit the casing to move up and down relatively to the wheel-shaft *a*<sup>6</sup>. The annulus *d* is in practice formed with a hollow interior, whereby an annular channel *d*<sup>2</sup> is formed, which may be utilized for lubricating purposes. In the side of the eccentric *d'* an oil-hole *d*<sup>3</sup> is provided, extending obliquely and communicating with any one of a number of oil-holes on the inner periphery of the annulus *d* or preferably with a channel *d*<sup>4</sup> extending completely around the inner periphery, whereby the oil may





spring connected between the end of the furl-lever and the tail-bone, a pivoted bell-crank, a link extending between one end thereof and the furl-lever, and a furling wire or device  
5 extending downward from the opposite end of the bell-crank, substantially as described.

6. The combination with a windmill turntable, of a tail-bone pivoted thereto and having the end prolonged beyond the pivot, a furl-lever having a part adapted to engage the prolonged end of said tail-bone and a spring connected between said furl-lever and the tail-bone and adapted to press the furl-lever against the prolonged end of the tail-bone, substantially as described.  
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7. The combination with a windmill turntable, of a tail-bone pivoted thereto and having the end prolonged beyond the pivot, a furl-lever pivoted to the turn-table eccentric to the tail-bone and having a part adapted to engage the prolonged end of the tail-bone, means for interlocking the furl-lever and tail-bone when the mill is out of the wind, and a spring connected between said furl-lever and the tail-bone and adapted to press the furl-lever against the tail-bone, substantially as described.  
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8. The combination with a windmill turntable, of a tail-bone pivoted thereto at a point intermediate its ends, a furl-lever pivoted on said turn-table and adjacent to the tail-bone and extending toward the prolonged end of the tail-bone opposite that carrying the sail, said lever having a part adapted to engage and press against said prolonged end of the tail-bone, and a spring attached to said lever at a distance from said pivot and extending back and attached to a point adjacent and on the tail-bone side of the pivot of the furl-lever to yieldingly press said lever against the prolonged end of the tail-bone.  
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9. The combination with a windmill turntable, of a tail-bone pivoted thereto and having the end opposite the sail prolonged beyond the pivot, a furl-lever also pivoted on said turn-table adjacent the tail-bone and extending toward the prolonged end of the tail-bone, said lever having a part adapted to engage and press against the prolonged end of the tail-bone, and a spring attached at one end to the free end of said lever and at the other end to the tail-bone at a point adjacent the pivot thereof, and on the opposite side of the tail-bone from the furl-lever, said spring serving to press the furl-lever against the  
45 50

prolonged end of the tail-bone to rock the same in a direction to throw the mill out of the wind, substantially as described. 55

10. The combination with a windmill turntable, of a tail-bone pivoted thereto and having the end opposite the sail prolonged beyond the pivot, a furl-lever pivoted on said turn-table upon one side of the tail-bone adjacent its pivot, said lever extending beyond the prolonged end of the tail-bone and having a part adapted to engage and press against the same to rock the tail-bone in a direction to throw the mill out of the wind, an arm carried upon one side of the tail-bone opposite the furl-lever and a coiled spring extending between said arm and the free end of the furl-lever and adapted to yieldingly press the lever against the prolonged end of the tail-bone, said prolonged end of the tail-bone and furl-lever being interlocked when the mill is out of the wind, substantially as described. 60 65 70 75

11. The combination with a tail-bone pivoted near one end to provide a prolonged end opposite that carrying the sail, of a furl-lever pivoted eccentric to said tail-bone and extending in the general direction of said prolonged end, and a spring connected between said furl-lever and said prolonged end and adapted when under tension to press said furl-lever against said prolonged end to impart to said tail-bone a tendency to move out of the wind, substantially as described. 80 85

12. The combination with a turn-table, of a tail-bone pivoted thereto near one end to provide a prolonged end opposite that carrying the sail, a furl-lever pivoted upon said turn-table eccentric to said tail-bone and at the inner side thereof and extending in the general direction of the prolonged end of said tail-bone, a lateral arm or projection on the tail-bone near the pivot and on the outer side thereof, a spring connected between the said furl-lever and said projection or arm and adapted to press said furl-lever against the prolonged end of said tail-bone to impart thereto a tendency to move out of the wind. 90 95 100

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

LA VERNE W. NOYES.

Witnesses:

W. CLYDE JONES,  
M. R. ROCHFORD.