

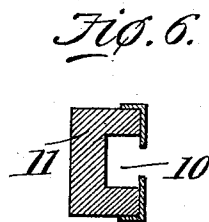
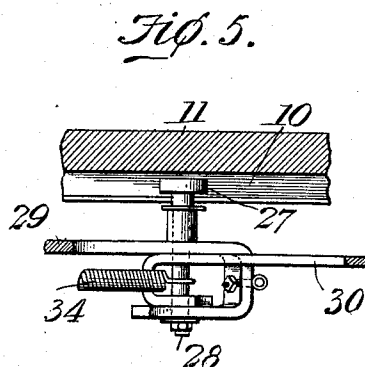
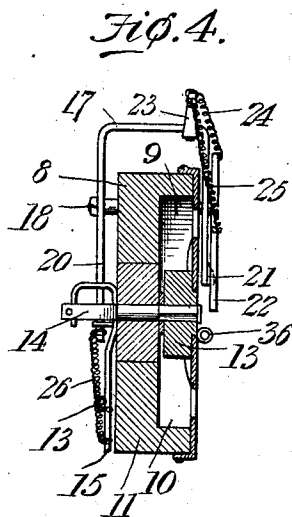
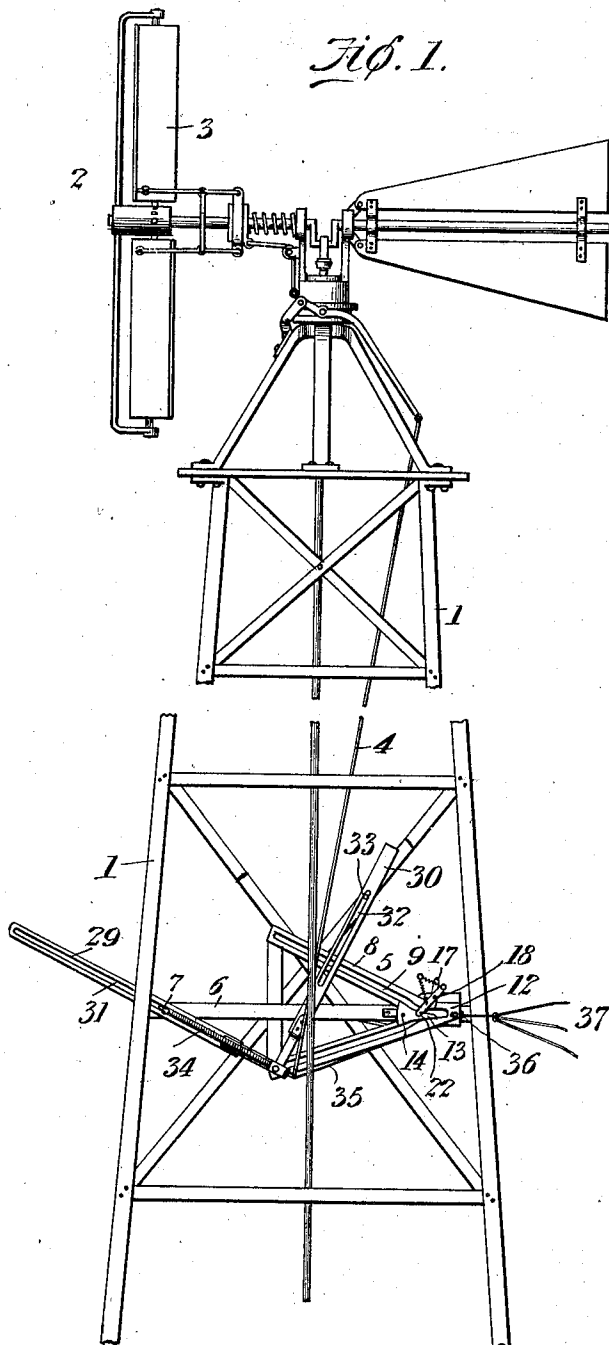
No. 763,037.

PATENTED JUNE 21, 1904.

R. BALGEMANN.
WINDMILL ATTACHMENT.
APPLICATION FILED MAR. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
A. J. Moore

Robert Balgemann Inventor
by *C. A. Snow & Co.* Attorneys

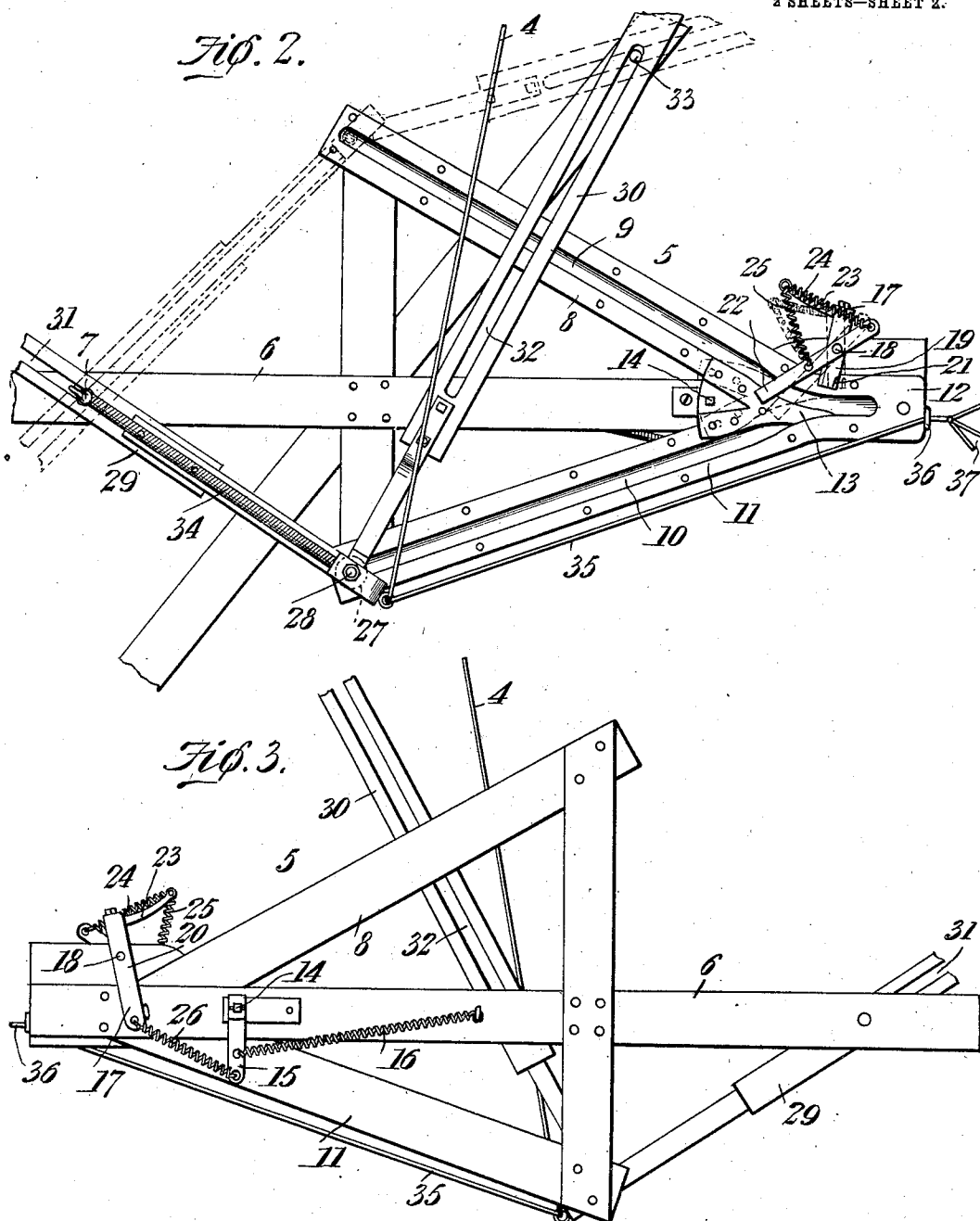
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UNITED STATES PATENT OFFICE.

ROBERT BALGEMANN, OF CHESTNUT, MONTANA.

WINDMILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 763,037, dated June 21, 1904.

Application filed March 11, 1904. Serial No. 197,693. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BALGEMANN, a citizen of the United States, residing at Chestnut, in the county of Gallatin and State of Montana, have invented a new and useful Windmill Attachment, of which the following is a specification.

This invention relates to windmills, and especially to an attachment therefor by which the mill may be thrown into or out of operation, and has for its objects to produce a comparatively simple inexpensive device of this character which may be readily applied to the mill and actuated at one or more points remote from the latter.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a windmill having my improved device applied thereto. Fig. 2 is a front perspective view, on a larger scale, of the attachment. Fig. 3 is a rear view thereof. Figs. 4, 5, and 6 are detail views.

Referring to the drawings, 1 designates a windmill-tower upon which is sustained a wind-wheel 2, having pivoted blades or sails 3, adapted to be maintained in operative or driving position by downward traction on a wire, cable, or other operating element 4 and to be moved automatically to and maintained in inoperative position when said operating member is relaxed. These parts may all be of the usual or any preferred construction, inasmuch as they constitute no part of my invention.

Attached to and supported within the tower 1 at a point beneath and suitably remote from the wind-wheel is a substantially triangular vertically-disposed frame 5, carrying a horizontal fixed arm or lever 6, which is attached to and extends substantially centrally through the frame 5, beyond the rear end of which latter the lever is extended and has fixed at its outer end an engaging member or hook 7. The upper side bar 8 of the frame has formed therein or is otherwise provided with a guideway or groove 9, while a similar groove or guideway 10 is provided in the lower frame-

bar 11, these guideways, which are extended throughout the entire length of the bars, being closed at the rear ends of the latter and merged into each other at the forward pointed end of the frame, where they produce a mutual continuation or extension 12, constituting a switch-opening, through the medium of which the grooves are adapted for communication. Arranged within the opening 12 is a movable member or switch 13, fixed upon a rotary shaft or pintle 14, extended transversely through the frame and carrying at its other end in rear of the latter an operating arm or lever 15, to which is attached one end of a retaining-spring 16, connected at its other end with the frame and adapted in practice to maintain the switch in normal position lying across the adjacent end of the guideway 10. For shifting the lever 13 I provide a tripping mechanism comprising a substantially U-shape member or lever 17, pivoted, as at 18, to the frame and having one of its arms, 19, overlying the front face and its other arm, 20, lying upon the rear face of the frame, the front arm 19 being provided at its inner end with an engaging lip 21, constituting a stop or abutment for engagement by a tripping member or lever 22, also pivoted upon the axis 18. Carried by the primary lever 17 is an arm 23, with the outer end of which is engaged a pair of springs 24 25, one of which is engaged with the outer end of the secondary tripping-lever 22, while the other is engaged with said lever at a suitable point between its pivot and inner end, while the arm 20 of the primary tripping-lever is connected by a spring 26 with the operating-lever 15.

Disposed for travel within the guideways 9 10 is a roller 27, arranged upon the pintle or axle 28, by which a pair of guide arms or members 29 30 are pivotally connected, said members being provided, respectively, with longitudinally-extending guide ways or slots 31 32, of which the guide-slot 31 receives the engaging member or hook 7 for movable connection with the outer end of lever 6, while the slot 32 receives a fastening device 33, by which it is movably connected with the framework of the tower 1, the function of these

guide members being to maintain the roller 27 in proper position for travel in the guideway.

Engaged with the hook 7 is one end of an operating-spring 34, the other end of which is attached to the pintle 28, carrying the roller, while connected with the forward end of one of the guide arms or members is a main traction cable or element 35, which extends through a guide 36, provided at the forward pointed end of the frame 5, and has connected therewith at a suitable point beyond the guide a plurality of auxiliary traction elements or cables 37, the main operating-cable 4 being also connected with the forward end of the guide member 29. In practice the roller 27 will normally travel within the guideway 10 and be maintained at the rear end of the latter by the spring 34, it being understood, of course, that when in this position of the parts sufficient downward traction will be exerted upon the operating-cable 4 to maintain the sails 3 in active position and the windmill in operation. Under these conditions, and supposing the spring 34 to be regulated or adjusted for wind of a moderate power or velocity, it is apparent that if the power of the wind increases to any material extent the tension of the spring will be overcome and the roller 7 permitted to travel upward along the guideway 10, thereby gradually relaxing stress upon the rope 4 and permitting the sails 3 to swing gradually to inactive position, thereby decreasing the power of the wind thereon and the speed of the mill, which will thus be automatically regulated or controlled. If, however, the wind becomes sufficiently violent to cause the roller 27 to travel to the end of the guideway 10 and to pass the switch 12, said roller will then move upward in the guideway 9, thereby throwing the wheel out of operation, it being obvious that this action may also be performed by traction upon any of the auxiliary cables 37, which in practice are extended to points or stations remote from the mill, these cables also serving as means for throwing the mill into operation from said stations. In traveling from the guide 10 to the guide 9 the roller 27 contacts with and shifts the switch 13 against the action of spring 16, whereby after the roller has passed into the guide extension 12 the switch will be automatically returned by the spring to normal position. After passing the switch the roller will be drawn by the spring 34 along the guideway 9 to the upper end of the latter, where it will remain at rest while the mill is out of gear. For throwing the mill in operation traction upon the cables 37 causes the roller to travel downward in the guide 9 until it contacts with tripping-lever 22, which normally extends across the guideway. Continued movement of the roller thus swings the tripping-lever on its pivot until it engages with stop 21 for causing a coincident movement of

the lever 17, which in turn, through medium of the spring connection 26 with lever 15, shifts the switch immediately upon the roller passing into the extension 12, at which time the lever 22 will have also moved out of engagement with the roller. The spring 34 will cause the roller to again travel downward in the guide 10, as before explained, and the switch will return to normal position by the action of spring 16.

From the foregoing it is apparent that I produce a comparatively simple device by which the mill may be readily thrown into or out of operation and which also acts to automatically govern or control the speed of the mill relative to the wind force. In attaining these ends it is to be understood that I do not limit myself to the precise details herein set forth, as minor changes may be made without departing from the spirit of the invention. Having thus described the invention, what is claimed is—

1. The combination with a wind-wheel and its tower, of a frame carried by the latter and provided with an upper and a lower guide, a member movably sustained by and adapted for travel respectively of the guides, said member being adapted when traveling in one of the guides to maintain the wheel in operation and when in the other to permit the wheel to become inoperative, a movable switch between the guides, means for moving the member positively past the switch, and means for automatically moving the member in the opposite direction upon the guides.

2. In a device of the class described, the combination with an upper and a lower guide, of a switch disposed between the guides, a movable member traveling in the path of the guides, means for automatically moving the member in one direction on the guide, means for positively moving it in the other direction, a wind-wheel adapted to be thrown into and out of operation and controlled by the movements of the member, and operative connections between the latter and the wheel.

3. In a device of the class described the combination with an upper and a lower guide, a movable member adapted for travel in the path of either of the guides, a switch disposed between the latter and adapted to be operated by the member, means for moving the latter in one direction, means for automatically moving it in the other direction, a wind-wheel controlled by the movements of the member, and operative connections between the latter and the wheel.

4. In a device of the class described, the combination with an upper and a lower guide, of a movable member adapted for travel in the path of either of the guides, a switch disposed between the latter and adapted to be operated by the member, means for positively moving the latter in one direction, a spring for automatically moving the member in the other

direction, a wind-wheel controlled by the movement of the member, and operative connections between the latter and wheel.

5 In a device of the class described, the combination with a pair of guides, of a movable member adapted for travel in the path of either of the guides, a switch disposed between the latter and adapted to be operated by the member in passing from one guide to the
10 other, a traction element for moving the member positively in one direction, means for

automatically moving the member in the other direction, a wind-wheel controlled by the movements of the member, and operative connections between the latter and wheel.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT BALGEMANN.

Witnesses:

FRANK SWARTZ,
OSCAR T. ROUSE.