M. EVERHART.

Device for Driving Light Machinery from an Irregular Power.

No. 201,399. Patented March 19, 1878.

Fig. 1

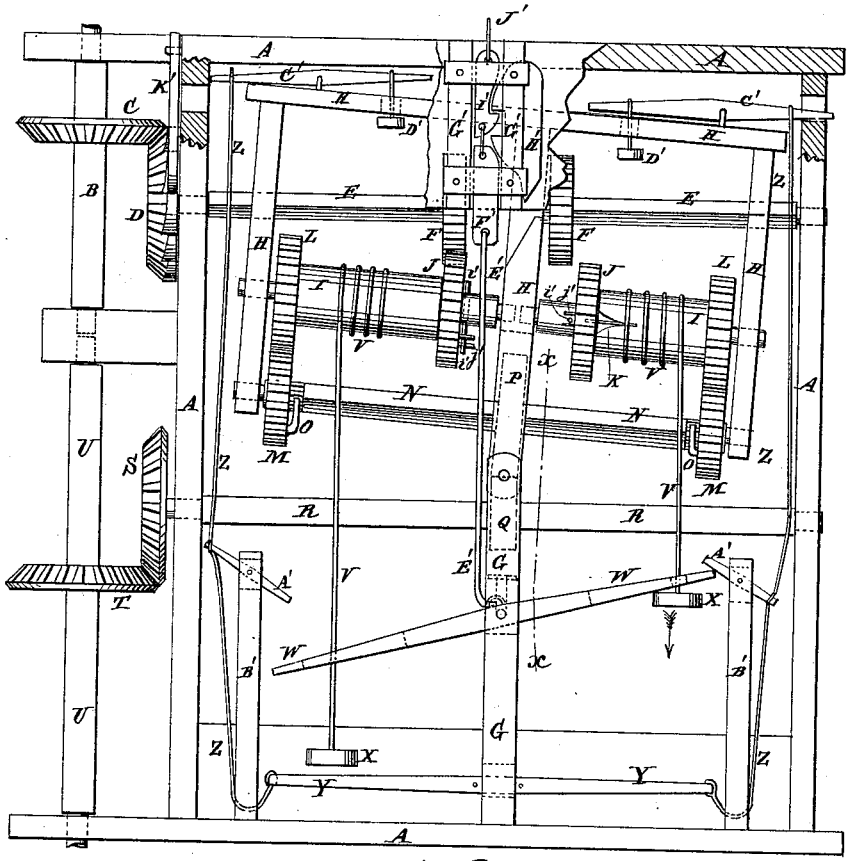
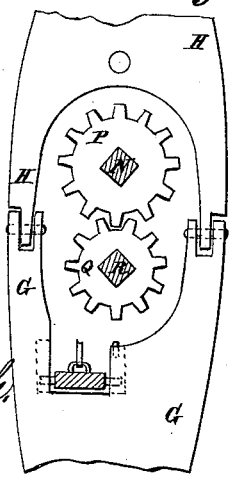


Fig. 2



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MARTIN EVERHART, OF VICTORIA, TEXAS.

IMPROVEMENT IN DEVICES FOR DRIVING LIGHT MACHINERY FROM AN IRREGULAR POWER.

Specification forming part of Letters Patent No. **201,399**, dated March 19, 1878; application filed October 12, 1877.

To all whom it may concern:

Be it known that I, MARTIN EVERHART, of Victoria, in the county of Victoria and State of Texas, have invented a new and useful Improvement in Devices for Driving Light Machinery Regularly from an Irregular Power, of which the following is a specification:

Figure 1 is a front view of my improved device, parts being broken away to show the construction. Fig. 2 is a detail section taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved device for storing the power produced by the irregular and intermittent action of a wind-wheel, so that it can be used for driving light machinery regularly and constantly, which shall be simple in construction and reliable in operation, shall adjust itself automatically, and may be made to throw the wind-wheel out of the wind.

The invention consists in the combination of the tilting frame, the drums, cords, and weights, the shafts, and the gear-wheels with each other, with the main frame-work, and with the shafts leading to the wind-wheel and to the machinery to be driven; in the combination of the lower lever, the cords or wires, and the weighted lock-levers with the main frame-work and the tilting frame, to enable said frame to be tilted by the descent of the weights; in the combination of the upper lever, the short levers, the cords or wires, and the weighted lock-levers with the main frame-work and the tilting frame, to enable the said frame to be tilted by the upward movement of the weights; and in the combination of the rod, the trip-block, the two catches, and the rope with the upper lever, to enable the upward movement of the weights to throw the wind-wheel out of the wind, as hereinafter fully described.

A is a substantial stationary frame, in bearings in one end of which revolves a shaft, B, to which the power of the wind-wheel is applied by suitable gearing, and which may be a continuation of the driving-shaft of said wind-wheel. To the shaft B is attached a bevel-gear wheel, C, the teeth of which mesh into the teeth of a bevel-gear wheel, D, attached to the end of a horizontal shaft, E. The shaft E revolves in bearings attached to the side bars of the frame A; and to its middle part, upon the opposite sides of and equally distant from its center, are attached two gear-wheels, F. To the middle part of the base-bar of the frame A is attached the lower end of an upright bar or frame, G, to the upper end of which is hinged the lower end of the central bar of the frame H. To and between the central and side bars of the frame H, and in line with each other, are pivoted two drums, I. Upon the inner ends of the drums I are placed two gear-wheels, J, in such positions as to be thrown alternately into and out of gear with the alternate gear-wheels F as the frame H tilts upon its hinge. The wheels J are loose upon the drums I, and their movements are limited by a pin, *i'*, passing through the shafts or journals of the said drums I, and between two pins, *j'*, inserted in the sides of the said wheels J.

The movements of the wheels J are resisted by the spring-rods K, placed in V-shaped notches in the faces of the drums I, and attached at one end to the said drums I and at their other ends to the wheel J.

By this construction, when the wheels J are thrown into gear with the gear-wheels F, the spring-rods K will receive the first impulse, and by their elasticity lessen the jar.

To the outer ends of the drums I are attached gear-wheels L, the teeth of which mesh into the teeth of the gear-wheels M, placed upon the end parts of the shaft N, and connected with it by pawls and ratchets O, so that when turned forward they may carry the said shaft N with them, and may be turned back without moving the said shaft. The shaft N is pivoted to the lower ends of the side bars of the frame H, and to its center, in a recess in the lower end of the center bar of said frame H, is attached a gear-wheel, P, the teeth of which mesh into the teeth of a gear-wheel, Q, attached to the middle part of the shaft R. The shaft R revolves in bearings in the side bars of the frame A, and to its end is attached a bevel-gear wheel, S, the teeth of which mesh into the teeth of the bevel-gear wheel T, attached to the shaft U. The shaft U revolves in bearings in arms or bars attached to the frame A, and from it motion is

taken to the machinery to be driven. V are ropes, which are wound upon, and their upper ends are attached to, the drums I. The ropes V pass down through slots in the end parts of a lever, W, and to their lower ends are attached weights X, of sufficient heaviness to drive the machine to be driven.

In a slot in the lower end of the bar or frame G is pivoted the center of a lever, Y, to the ends of which are attached the lower ends of the cords or wires Z. The cords or wires Z pass around guide-pulleys pivoted to, or through guide-holes formed in, the lower parts of the bars or frames B′, pass up along the side bars of the frame A, and are attached to the outer ends of the two short levers A′, which are pivoted to the upper ends of the bars or frames B′, attached to the base-bar of the frame A. From the levers A′ the cords or wires Z pass up along the side bars of the frame A, and their upper ends are attached to the levers C′, near their outer ends. The levers C′ are pivoted to the upper side of the top bar of the frame H, and their outer ends project beyond the side bars of said frame H, so that when the frame H is tipped down toward either side the outer end of the lever C′ upon that side may project through a hole in the side bar of the frame A, and the outer end of the lever C′ upon the other side may rise above the said hole and rest against the said side bar, so as to lock the frame H in place until the said lever is drawn down. From the inner ends of the levers C′ are suspended, or to them are attached, weights D′ to keep their outer ends raised.

The pivot of the lever W works in slots or grooves in the bar or frame G, and to its center is attached the end of a rod, E′, the upper end of which is attached to a block, F′, placed between guide-bars G′, attached to the upper part of the frame A. One of the guide-bars G′ is slotted, and in the said slot is pivoted a catch, H′, the forward side of the lower end of which is beveled or rounded off, so that it may be pushed back by the upward movement of the block F′.

To the upper end of the block F′ is connected, by a cord-loop or other flexible connection, a catch, I′, which interlocks with the catch H′, as shown in Fig. 1.

To the upper end of the catch I′ is attached the lower end of a cord, T′, the other end of which is designed to be connected with the mechanism of a wind-wheel.

When the apparatus is in the position shown in Fig. 1, the right-hand weight X is shown as running down to drive the shaft U and the machinery connected with said shaft, and the left-hand weight is shown as being wound up, ready to exert its power in turn. The machinery will be shifted by whichever of the weights X reaches the limit of its movement first.

If the right-hand weight X reaches the lever Y before the other weight reaches the limit of its upward movement, it presses down the end of the said lever Y, which operates the left-hand cord or wire Z to unlock the left-hand lever C′ and draw down the left-hand end of the frame H, throwing the right-hand wheel J into gear with the right-hand wheel F, winding up the right hand weight X, and allowing the left weight to run down. If the left-hand weight X reaches the lever W before the other weight has reached the limit of its downward movement, it forces up the left-hand end of the said lever W against the inner end of the left-hand lever A′, which operates the left-hand cord or wire Z to draw down the lever C′, unlock the frame H, and shift it, bringing the right-hand wheel J into gear with the right-hand wheel F, and causing the right-hand weight to be wound up, whether it had reached the limit of its downward movement or not. When the second weight X approaches the limit of its upper movement, while the first weight is still up, the lever W will be raised, causing the rod E′ and the block F′ to push back the catch H′, and releasing the catch I′ and rope J′, which throws the wind-wheel, with which the said rope J′ is connected, out of the wind.

K′ is a pawl, which is pivoted to the frame A in such a position that its engaging end may rest upon and engage with ratchet-teeth formed upon the rim of the gear-wheel D, to prevent the apparatus and the wind-wheel connected with it from being turned backward by the weight X, when there is wind, or only a light wind, to counteract its gravity.

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

1. The combination of the tilting frame H, the drums, cords, and weights I V X, the shafts E N R, and the gear-wheels C D F J L M P Q S T with each other, with the frame A G, and with the shafts B U, leading to the wind-wheel and the machinery to be driven, substantially as herein shown and described.

2. The combination of the lever Y, the cords or wires Z, and the weighted lock-levers C′ D′ with the frame-work A G and the tilting frame H, to enable said frame H to be tilted by the descent of the weights X, substantially as herein shown and described.

3. The combination of the lever W, the short levers A′, the cords or wires Z, and the weighted lock-levers C′ D′ with the frame-work A G and the tilting frame H, to enable the said frame H to be tilted by the upward movement of the weights X, substantially as herein shown and described.

4. The combination of the rod E′, the trip-block F′, the catches H′ I′, and the rope J′ with the lever W, to enable the upward movements of the weights X to throw the wind-wheel out of the wind, substantially as herein shown and described.

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Witnesses:
GEORGE MALLORY,
ROBERT ALEXANDER SANFORD.