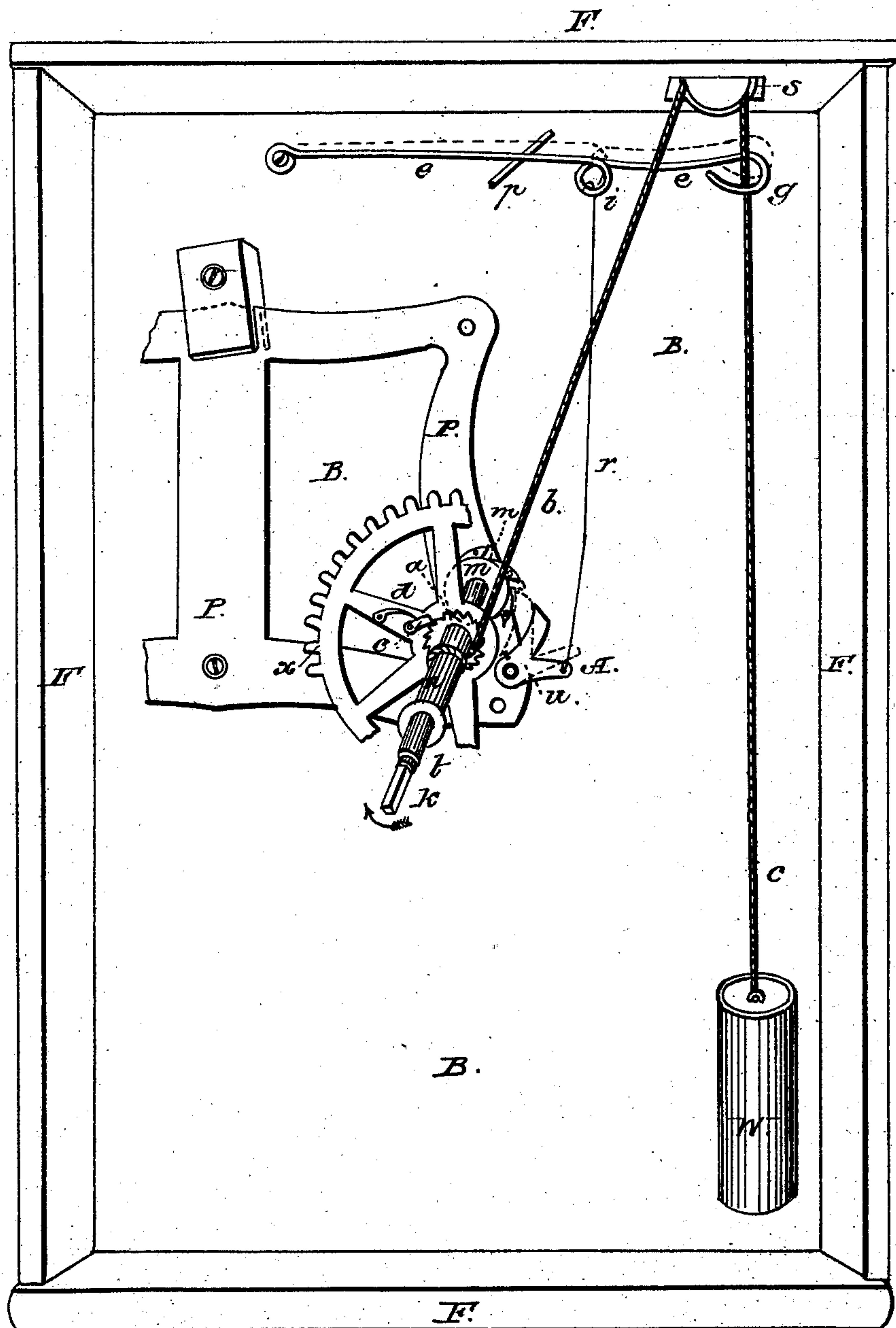


O. H. WOODWORTH.

Clock Stop.

No. 78,170.

Patented May 19, 1868.



Witnesses:

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Inventor.

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Letters Patent No. 78,170, dated May 19, 1868; antedated May 7, 1868.

IMPROVEMENT IN WINDING-STOP FOR WEIGHT-CLOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, O. H. WOODWORTH, of Columbia City, in the county of Whitley, in the State of Indiana, have invented a new and improved Winding-Stop for Weight-Clocks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in attaching to and using in connection with the movement or works of an ordinary weight-clock, a winding stop, so arranged and applied that the ascending motion of the clock-weight, when being wound up, shall stop the winding of the clock at the desired point in the ascent of the weight, in such a manner as to prevent the weight or weights from being wound up too closely and tightly, and thereby effectually prevent the breaking of the clock-cords, as well as the frequently injurious effects upon the pulley at the top of the clock, and upon the striking, running, or alarm-machinery of the clock, caused by the quite common practice of winding up the weights too closely and tightly.

To enable others skilled in the art of clock-making to make and use my invention, I will proceed to describe its construction and operation.

In the drawing, F shows the frame or case of the clock, to the back, B, of which is shown fastened, in the ordinary way, by screws, buttons, or otherwise, the bottom (or rear) plate of a common brass clock-movement, shown at P. The drawing shows but a part of said plate.

n is the main winding-shaft of the clock, in position in plate P. X shows a portion of the main wheel, through the centre of which loosely passes the shaft *n* in the usual manner. *a* is the ordinary winding-ratchet, used in connection with the common winding-pawl *c* and pawl-spring *d*. C is the common winding-cord, passing from shaft *n* up over pulley S, and sustaining the weight, W.

Now, to apply the ascending motion of the weight to the stopping of the winding of the clock, as before mentioned, I attach firmly to shaft *n* the disk or wheel *m*, provided with one or more winding-stops *o*, as shown. I also attach to plate P the stopping-pawl *u*, which moves freely on the pivot or rivet, by which it is loosely but securely attached to plate P. The winding-stops, *o*, and the stopping-pawl, *u*, must be made in a substantial manner. I also connect the arm A of stopping-pawl *u* to the elevating-rod *e*, by means of the connecting-rod, wire, or cord *r*, as shown. The elevating-rod *e* is jointed loosely at one end to the inside of the back, B, of the clock-case, and at *i* forms a small loop for its connection with rod *r*, and, extending under the pulley S, forms a larger loop, as shown at *g*, down through which passes cord C to weight W.

Operation: The weight being run down, the rods *e* and *r* and the pawl *u* in the positions shown, and the winding-shaft *n* being supposed to be held to its place by the proper bearing in the upper or front plate of the movement (which plate is not shown, for obvious reasons,) at *t*, we apply the winding-key at *k*, and, turning in the direction of the arrow, wind up the weight until it strikes and presses upward the elevating-rod *e* toward pulley S, as indicated by the dotted line. The ascending motion of weight W, by thus pressing upward the rod *e*, and rod *e* being connected to stopping-pawl *u* by the rod *r*, as shown, thereby throws the point of stopping-pawl *u* toward shaft *n*, which, being turned in the direction of the arrow, brings one of the stops *o* against the point of pawl *u*, thereby stopping the winding of the clock at the desired point of the weight's ascending motion. The pin *p* is driven into the inside of the back of the case to support the rod *e*, and prevent it from falling too low as the weight runs down.

The connecting-rod *r* is generally a small spring wire, somewhat crooked, to render it elastic, and thereby prevent tension on rod *e* and pawl *u*.

It will be seen that rod *r* can be readily adjusted in length, and rod *e* in its nearness to pulley S, so as to permit the weight to be wound up very nearly to the pulley, and yet not touch it; in fact, by this invention, the weight is made to stop its own ascent at any point desired.

It is well known that the cords in weight-clocks are frequently broken by winding up the weights too tightly, and that the cases of clocks are sometimes seriously injured by the falling of the weights, when the cords or pul-

leys are broken by winding up the weights too closely. It is also well known that when a weight-clock is wound too closely, and the cords or pulleys are not broken, the movements or works of the clock are injuriously affected by the great amount of strain thus communicated to them. The injurious effects thus produced exhibit themselves in the bending or breaking of the cogs, ratchet-pawl, or ratchet-teeth, the loosening of the movement from its fastenings, the rapid wearing away of the journals or pivots, and their bearings, &c. These and other injurious effects are produced on both the running and striking-sides of weight-clocks of the ordinary kind, by the quite common practice of winding up the weights too closely and tightly.

It will be seen that my invention obviates these difficulties and dangers, by causing the ascending weight to virtually stop its own ascent at any desired point, and prevent any strain on the cord, except that produced by the specific gravity of the weight itself. By the use of this invention, all shock or strain on the cords, pulleys, or movements is obviated, except that arising from the simple contact of the winding-stops *o* and stopping-pawl *u*, and this shock or strain is confined to the shaft *n*, stops *o*, and pawl *u*, and cannot injuriously affect the clock in any respect.

It is evident that this invention is applicable to either the running, striking, or alarm-machinery of weight-clocks, and that, by its use, the danger of injuring a weight-clock by winding up its weight or weights too closely and tightly is obviated, by rendering it almost impossible to wind the weight or weights too closely and tightly.

It is also evident that the size, mode of application, and construction of my weight-clock winding-stop, herein described must be governed, to a great extent, by the size, form, and relative positions of the various parts of the clock to which the invention is applied.

My weight-clock winding-stop herein described can be easily and cheaply constructed, and readily applied to any of the ordinary weight-clocks now in use or being manufactured.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The application of the ascending motion of the weights of weight-clocks, when such weights are being wound up, to the stopping of the winding of the clock at any desired point in the ascent of the weights, for the purposes specified.
2. The construction and application of a weight-clock winding-stop, operated by the ascending motion of the clock-weights when they are being wound up, substantially in the manner and for the purposes described and illustrated.
3. The combination and arrangement of the elevating-rod *e*, the connecting-rod *r*, the stopping-pawl *u*, and the stops *o*, when used in connection with the winding-shaft *n* and weight *W*, in the manner described, and for the purposes mentioned.

Witnesses:

G. A. STONE,
R. B. BLACK.

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