G. B. OWEN.

Pendulum Adjustment for Clocks.

No. 212,045. Patented Feb. 4, 1879.

Fig. 1

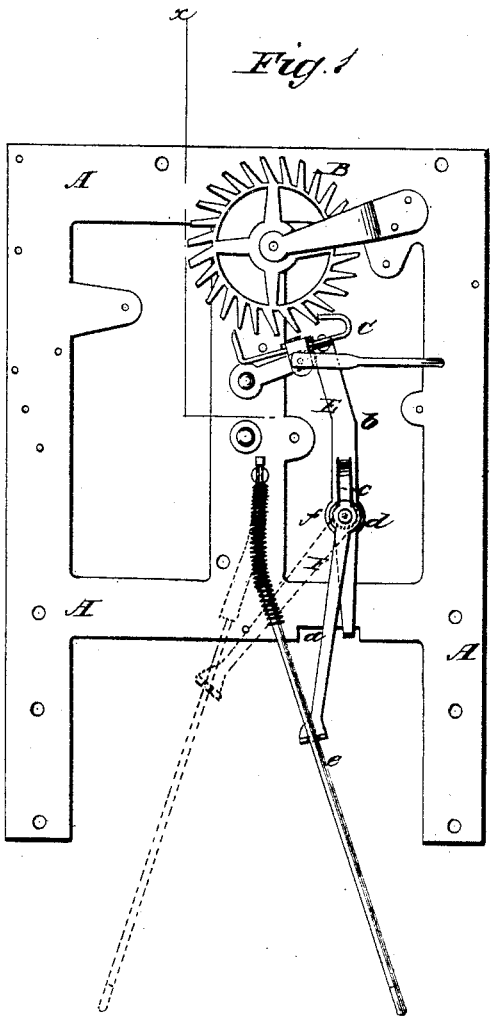
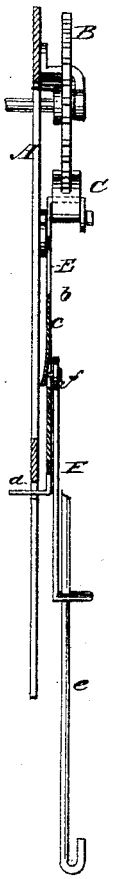


Fig. 2.



WITNESSES:

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GEORGE B. OWEN, OF WINSTED, CONNECTICUT.

IMPROVEMENT IN PENDULUM ADJUSTMENTS FOR CLOCKS.

Specification forming part of Letters Patent No. **212,045**, dated February 4, 1879; application filed December 13, 1878.

To all whom it may concern:

Be it known that I, GEORGE B. OWEN, of Winsted, in the county of Litchfield and State of Connecticut, have invented a new and Improved Clock-Movement, of which the following is a specification:

This invention relates specifically to improvements in the construction of the pallet-arm and the rod connecting it with the pendulum, the object whereof is to so connect the said parts that the pendulum will adjust itself readily to the position of the clock without interfering with the regularity of the pulsations.

It consists in pivoting the connecting-rod to an arm fixed to the pallet, and extending down sufficiently far to give ample leverage to the pendulum, whereby the regularity of the beats will be maintained when the clock is out of plumb. Further, it consists of the manner of connecting the pendulum connecting-rod to the pallet-arm.

In the accompanying drawing, Figure 1 is a side elevation of a clock-movement provided with my improvements; and Fig. 2 is a section of the same on line *x x*.

Similar letters of reference indicate corresponding parts.

Referring to the drawing, A represents the frame of the clock-movement. B is the escapement; and C is the pallet.

E represents an arm. The upper end is fixed to the pallet just back of its pivot, and the arm is bent so as to form a right-angular connection with the pallet, and is then carried down, its end being bent into a slot, *a*, made in the under edge of the lower cross-bar of the frame.

Just below the bend *b* in arm E a tongue, *c*, is struck out of the arm, (the upper end remaining in connection with it,) so as to form a spring. At the free end of this spring-tongue the arm is enlarged into a boss, *d*.

F is the rod connecting the pendulum-rod *e* with the pallet-arm. Its upper end is laid against the outside of the boss *d*, and is secured in that position by a pivot, *f*, passed through it and through the free end of the tongue, as clearly shown in Fig. 2. The spring in the tongue holds the end of the rod against the arm, and thus keeps it at the proper tension, and as it wears it can be adjusted to compensate therefor.

The operation of the invention is as follows: However much out of plumb the clock may be, the pallet will not be affected, as its arm, not being rigidly connected with it, will be free to vibrate in the same arc at all times, the connecting-rod adjusting itself to the varying distance of the pendulum-rod from the arm by slipping up or down on the said rod. When the clock is perfectly plumb the connecting-rod F is at an acute angle to the arm E; but if the top of the clock is turned over, say, to the right, the connecting-rod approaches near to a parallel with the arm, and the farther it is turned the nearer it gets to it. At the same time the arm F is not affected by the changed position of the pendulum, whereby, when in operation, it exerts the same force on the pendulum, and thus maintains the regularity of the beats.

When the clock is turned in the opposite direction out of plumb, the pendulum and connecting-rod assume the position indicated by the dotted lines; but the pallet-arm vibrates in precisely the same arc, and thus the regularity of the beats is not interrupted.

The verge of clock-movements, I am aware, has been heretofore pivoted to the pallet directly; but the manner of doing this is objectionable on account of the difficulty of making the pivoted joint, the consequent expense, and the insufficient leverage. Now, the arm referred to in my description is stamped out complete, is attached to the pallet by an ordinary rivet, and its connection with the connecting-rod is quickly and easily made, and, besides, the spring-tongue enables the proper tension to be maintained. In addition the leverage is such that it vibrates the pendulum with perfect ease.

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

1. As an improvement in clock-movements, the pallet-arm E, in combination with the connecting-rod F, pivoted thereto, and pendulum-rod *e*, for adjusting the center of vibration and securing the regularity of the beats when the clock is out of plumb, substantially as described.

2. The spring-tongue *c* in arm E, to which the rod F is pivoted, in combination with the rod F, substantially as described.

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Witnesses:

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