H. J. & W. D. DAVIES.
Pendulum Clock.

No. 197,832. Patented Dec. 4, 1877.

Fig. 3.

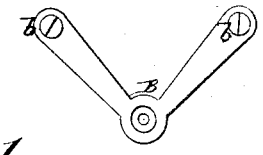


Fig. 1.

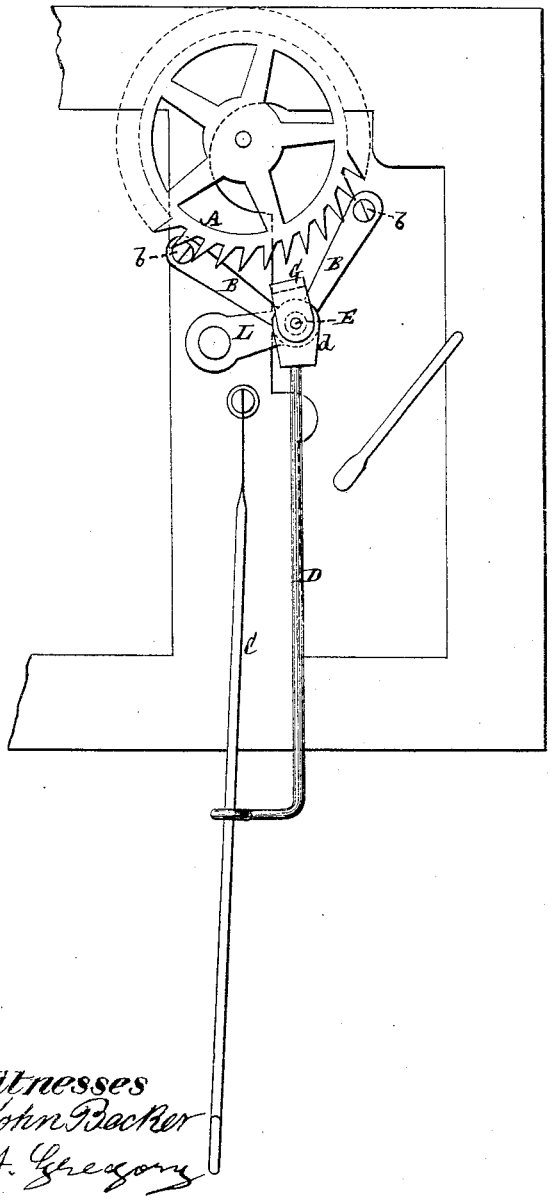
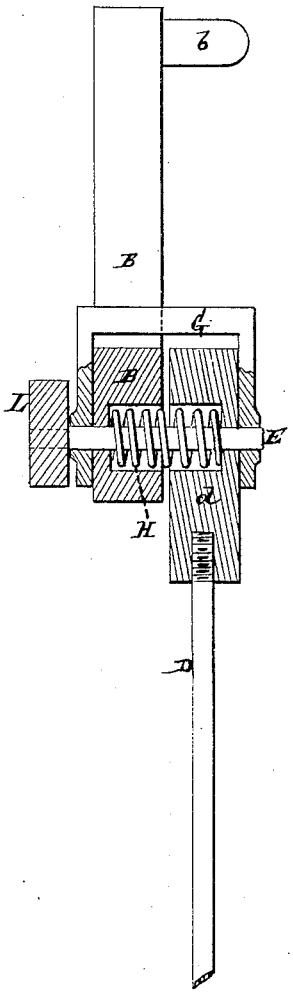


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY J. DAVIES AND WALTER D. DAVIES, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PENDULUM-CLOCKS.

Specification forming part of Letters Patent No. **197,832**, dated December 4, 1877; application filed November 8, 1877.

To all whom it may concern:

Be it known that we, HENRY J. DAVIES and WALTER D. DAVIES, both of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Pendulum-Clocks, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to means for adjusting or correcting the beat of pendulum-clocks, regardless of the vertical position of the clock and perfect or imperfect setting of the crutch-wire.

The invention consists in a novel combination of devices, in which the crutch-wire is not merely attached to the anchor by a movable joint on the spindle or arbor which carries the anchor, but said anchor and said wire have applied to them a spring, which bears on both the anchor and the crutch-wire, to hold them apart between or within a curb, yoke, or guard, whereby a very efficient adjustment of the crutch-wire, at its movable joint on the anchor-arbor, is automatically effected by the shifting of the anchor when making an irregular beat.

Figure 1 represents a face view of a pendulum-clock movement, in part, having our invention applied; and Fig. 2, a transverse sectional view, upon a larger scale, of the crutch-wire and anchor, and the means for effecting the adjustment of the one in relation with the other. Fig. 3 is a face view of the anchor detached.

A is the escape-wheel of a pendulum-clock, and B its anchor, having pallets *b b*. C is the pendulum-rod, and D the crutch-wire, which may be connected, at its lower end, with the pendulum-rod, as usual. E is the anchor spindle or arbor, on which is arranged not only the anchor B, but also the movable joint, head, or hub *d* of the crutch-wire D. Said arbor may either be a live or dead spindle. When a dead one, then both the anchor and the hub or joint of the crutch-wire should be free to turn on it; but when said arbor is a live one, or free to turn, then either the anchor or the hub of the crutch-wire, but not both, may be fast to it. It is preferred, however, to make both the hub of the anchor and the hub or head of the crutch-wire free to turn on the arbor or pin E, which is represented as secured firmly in a cock, L, on the frame of the movement, which is the arrangement that will here be described.

G is a yoke, which is constructed to embrace within it both the hub of the anchor and the hub or head of the crutch-wire. The arbor or pin E passes through this yoke. Interposed between or within the hubs of the anchor and the crutch-wire, and outside of or around the arbor E, is a spring, H, which serves to press said hubs apart and against the ends of the yoke, thus inducing an elastic pressure and friction on both the anchor and the crutch-wire, to hold them in proper working connection with each other, free from any liability to shift when the clock is in beat, but, when the clock is out of beat, providing for the shifting of the anchor and the crutch-wire axially in relation with each other, in order that the pallets *b b* of the anchor may be adjusted to uniformly engage with the escape-wheel A. Said adjustment, which is automatic, subject to control of the anchor by the pendulum, may be effected in various ways or by different means for arresting the motion of the anchor when out of beat—as, for instance, by the bottoming of either pallet between the teeth of the escape-wheel, and which, by the momentum of the pendulum, will necessarily produce a changed axial position or relation of the crutch-wire and anchor at the movable friction-joint of the crutch-wire, and serve to bring the two pallets in unison with the escape-wheel.

Instead of the yoke G, any other form of curb or guard—as, for instance, collars on the arbor E—may be used to hold the crutch-wire and anchor in place, and to form friction or resistance surfaces for them, under pressure or action on them by the spring H.

We do not, broadly, claim attaching the crutch-wire to the anchor by a movable joint, as in certain French movements the crutch-wire has an automatically-adjustable connection with the anchor, formed by fitting the head of the said wire with a screw-thread onto

the spindle or arbor which carries the anchor; but

What is here claimed, and desired to be secured by Letters Patent, is—

The combination, with the anchor, its arbor, and the head or movable joint of the crutch-wire fitted on said arbor, of a spring applied to force said anchor and said crutch-wire apart, and a curb, yoke, or guard arranged to resist the pressure of the spring, and to form friction-surfaces for the anchor and crutch-wire, or either, substantially as specified.

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