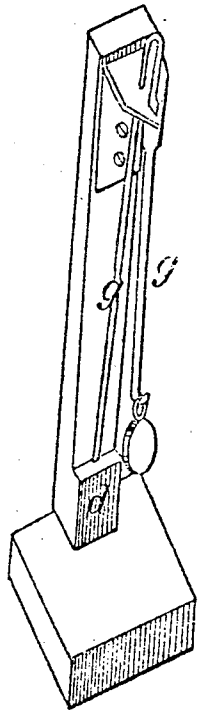
G. BUCHANAN.

COMPENSATING PENDULUM.

No. 30,798. PATENTED DEC. 4, 1860.



TAKEN FROM PATENT OFFICE REPORT.

1860 - VOL. II.

ONLY DRAWING ACCESSIBLE (1916).

UNITED STATES PATENT OFFICE.

GEORGE BUCHANAN, OF HICKORY, PENNSYLVANIA.

COMPENSATING PENDULUM.

Specification of Letters Patent No. 30,798, dated December 4, 1860.

To all whom it may concern:

Be it known that I, GEORGE BUCHANAN, of Hickory, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Self-Regulating Chronometers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective and Fig. 2 a side elevation.

The nature of my invention consists in the continuation of the pendulum wire above the axis of oscillation, there forming a bow, thence descending through a permanent plate to a fixed block below on a level with the pendulum ball substantially for the purpose hereinafter set forth.

It is a well known philosophical fact that heat expands, and cold contracts and so great is the influence which this law has upon clocks in causing them to vary their time, according to the degrees of temperature that the necessity for devising some method by which this difficulty could be entirely obviated has long been felt. It is believed from actual experiments that the plan which I shall here suggest will fully meet all the difficulties and objections urged against other inventions for a similar purpose.

To enable those skilled in the art to make and use my invention I will now describe its construction and operation.

(A) represents the clock, and (*b*) a piece of thin metal, with one end bent at right angle and screwed onto the back of the clock as fully shown.

(*g*) represents the pendulum wire which is secured at the foot to block (*d*). Said wire extends upward through a hole in piece of metal (*b*) and forms a bow above, then descends through a narrow slit in the end of the same to a level with the block (*d*). It should be observed that the wire is hammered to a thin spring, at the point where it descends through the slit in the end of piece of metal (*b*).

c represents the pendulum ball.

Now it is evident that as the distance from the bow to each end of the wire is precisely the same, the distance from the pendulum ball to the axis of oscillation must invariably remain the same; say for instance that the inside wire contracts the twentieth part of an inch, the outside wire being the same size and length will contract correspondingly. Thus it would seem that the distance from the center of the pendulum to the axis of oscillation would be variable, but observe that just in proportion as the two sides of the wire contracts the distance from the bow to the piece of metal (*b*) diminishes thus restoring the length of wire below the said piece of metal or in other words a mutual compensation takes place, and thus not only keeps the length of the two sides of the wire relatively the same, but also the distance from the center of the pendulum ball to the axis of oscillation. As this is all that is necessary to keep correct time independent of heat or cold, the object is fully accomplished, by an arrangement as economical and simple in its construction as it is effective.

Having thus fully described my invention what I claim and desire to secure by Letters Patent is—

The continuation of the pendulum wire to a point above the axis of oscillation, there forming a bow; thence descending through a fixed plate or its equivalent to a fixed block below, on a level with the pendulum ball, substantially in the manner and for the purpose specified.

GEORGE BUCHANAN.

Witnesses:

LEONARD S. JOHNS,

ALEX WIRNICK.