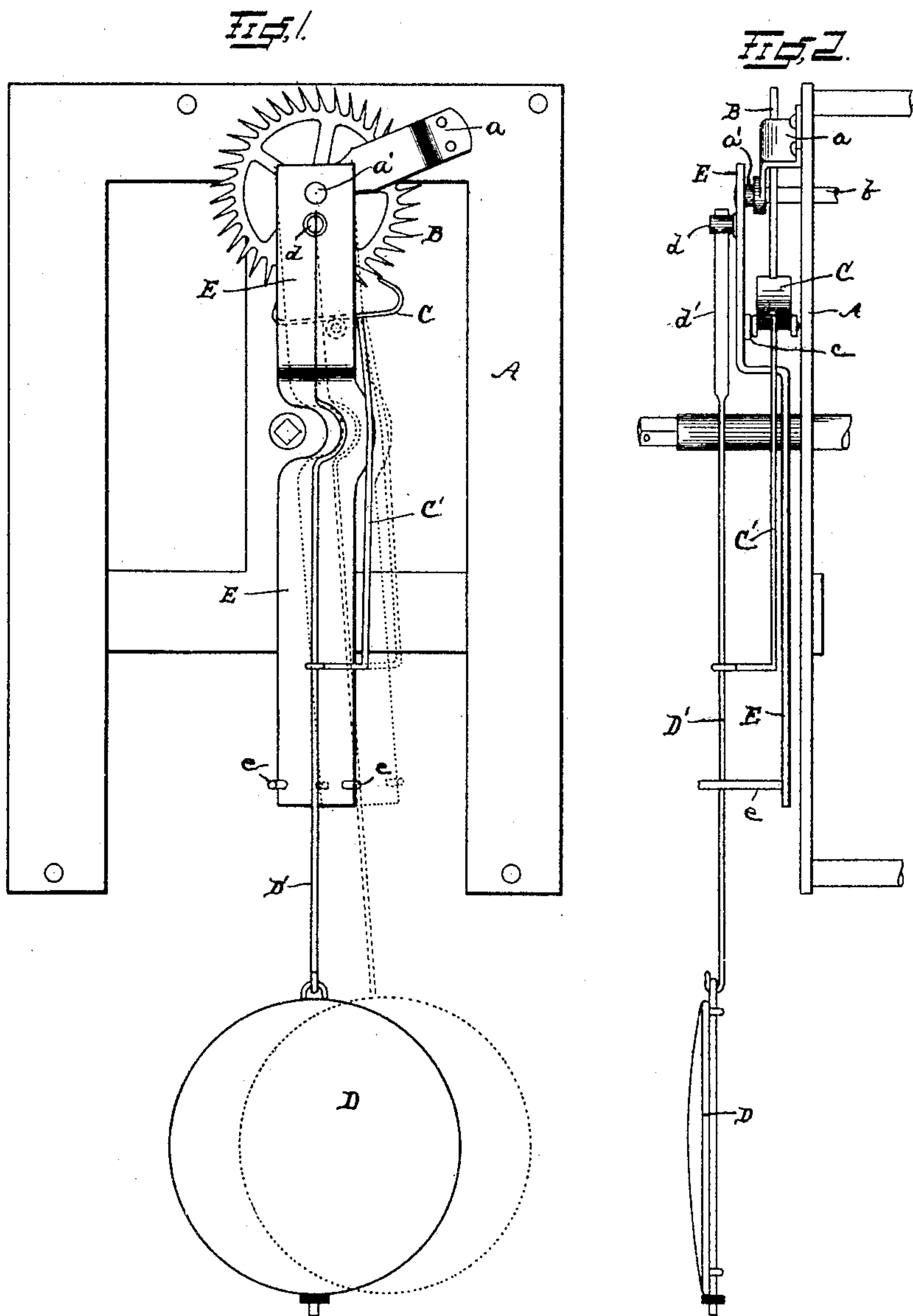


(No Model.)

D. W. HULL.
PENDULUM ADJUSTER FOR CLOCKS.

No. 538,257.

Patented Apr. 30, 1895.



WITNESSES

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UNITED STATES PATENT OFFICE.

DANA W. HULL, OF ERIE, PENNSYLVANIA.

PENDULUM-ADJUSTER FOR CLOCKS.

SPECIFICATION forming part of Letters Patent No. 538,257, dated April 30, 1895.

Application filed November 24, 1894. Serial No. 529,833. (No model.)

To all whom it may concern:

Be it known that I, DANA W. HULL, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to clocks, and consists in certain improvements in the construction thereof, as will be hereinafter fully described and pointed out in the claims.

More particularly, my invention relates to clocks having pendulums. In clocks of this class, the exercise of great care has heretofore been necessary to effect a true vertical positioning of the clock frame in order to insure even movement of the pendulum as acted upon by the clock mechanism.

The object of my invention is to provide means whereby the relative parts may be adjusted to operate properly without great care being exercised in the positioning of the frame, said adjustment being preferably accomplished automatically.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows a front elevation of a clock frame with the escapement mechanism in place thereon. Fig. 2 shows a side elevation of the same parts from the right of Fig. 1.

A, marks the frame of the clock; B, the escapement wheel carried by the shaft *b*; *a*, a bracket attached to the frame and carrying the other end of the shaft *b*; C, the verge; C', the verge wire; D, the pendulum, and D' the pendulum rod. These parts perform the same functions as in the ordinary clocks of this class, and the other parts of the clock works (not shown) may be of any desired construction. A stud *a'*, extends outwardly from the bracket *a*, and is concentric with the shaft *b*, and the escapement wheel B. A hanger E, is swiveled on the stud, the stud being passed through a perforation in the hanger E, and headed, rivet fashion, on the outside, so as to form a friction joint of considerable resistance. The verge is journaled on the post *c*, which is mounted on this hanger E. The

pendulum is also suspended from a post *d*, mounted on the hanger E.

Now it will be noted, that as the hanger E, is swiveled concentrically to the escapement wheel, and the pendulum and verge are carried by this hanger, the hanger may be swung from right to left or vice-versa without changing in the least the relative positions of escapement wheel, verge and pendulum, and if the hanger is swung to a position to bring the pendulum vertically below its point of suspension the parts will if otherwise correctly adjusted, operate properly, and this without regard to the exact position of the frame and other parts of the clock.

There may be several ways of automatically adjusting the hanger to its proper vertical position. If the swivel joint on the stud *a'*, were sufficiently loose, it might be accomplished by the direct force of gravity alone; but it is desirable that the swivel joint on the stud *a'*, should be sufficiently tight to prevent any vibration of the hanger E, incident to the movement of the verge or pendulum after it has assumed its proper position, and I have adopted the following means of accomplishing the adjustment of the hanger: At the lower end of the hanger are two posts *e—e*, extending in front of the hanger sufficiently far to be in the plane of oscillation of the pendulum rod. The distance between these posts is such, that when the hanger E, is properly adjusted, they will be outside of the normal sweep of the pendulum rod. As the pendulum is started it is given an impetus which carries it much beyond its normal sweep. It therefore contacts one of the posts *e*, and its momentum carries the hanger with it. As it returns it contacts the post *e*, at the opposite side and carries the hanger with it in this direction. This action continues until the pendulum has reached its normal sweep, when it will be found that this action of the pendulum upon the posts *e e*, has swung the hanger E, to exactly the right position for the proper movement of the pendulum and its immediately actuating parts.

What I claim as new is—

1. In a clock of the type shown, the combination with the frame; the escapement wheel mounted thereon; the verge; and the pendu-

lum; of mechanism for adjusting the verge; and means for actuating said adjusting mechanism, which means is actuated by the oscillatory momentum of the pendulum.

5 2. In a clock of the type shown, the combination with the frame; and the escapement wheel mounted thereon; of a hanger swiveled concentrically with said escapement wheel; the verge mounted on said hanger; the pendulum suspended from said hanger; means
10 whereby said hanger is carried in either direction with said pendulum when the sweep of the pendulum is greater than normal or the hanger out of true position.

15 3. In a clock of the type shown, the combination with the frame; and the escapement wheel mounted thereon; of a hanger swiveled concentrically with said escapement wheel; the verge mounted on said hanger; the pendulum suspended by a rod from said hanger;
20 posts on said hanger that extend into the plane of movement of said pendulum rod and are of such distance apart as to be engaged by the pendulum rod when the hanger is out
25 of position or the sweep of the pendulum is greater than normal.

4. In a clock of the type shown, the combination with the frame, and the escapement wheel mounted thereon; of a hanger swiveled
30 concentrically with said escapement wheel; frictional means of preventing a vibration of

said hanger incident to the normal beat of the pendulum; the verge mounted on said hanger; and the pendulum suspended therefrom.

5. In a clock of the type shown, the combination with the frame; and the escapement wheel mounted thereon; of a hanger swiveled with a friction joint concentrically with said escapement wheel, the friction of said joint being sufficient to prevent vibration of said
40 hanger incident to the normal beat of the pendulum; the verge mounted on said hanger; and the pendulum suspended therefrom.

6. In a clock of the type shown, the combination with the frame; and the escapement wheel mounted thereon; of a hanger swiveled concentric with said escapement wheel; means of preventing a vibration of said
45 hanger incident to the normal movement of the pendulum; the verge mounted on said hanger; and means whereby said hanger is carried in either direction with said pendulum when the sweep of the pendulum is greater
50 than the normal or the hanger out of its true position.

In testimony whereof I affix my signature
55 in presence of two witnesses.

DANA W. HULL.

Witnesses:

WM. P. HAYES,
H. C. LORD.