RICE & HARRINGTON.

Pendulum.

No. 19,153. Patented Jan. 19, 1858.

Fig. 1.

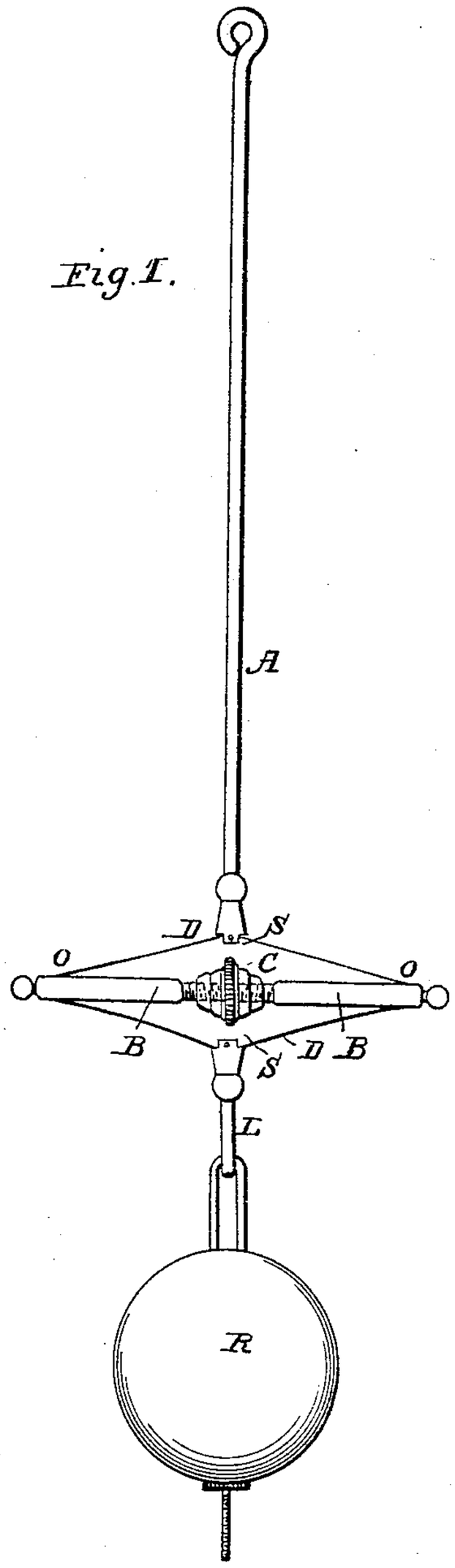


Fig. 2.

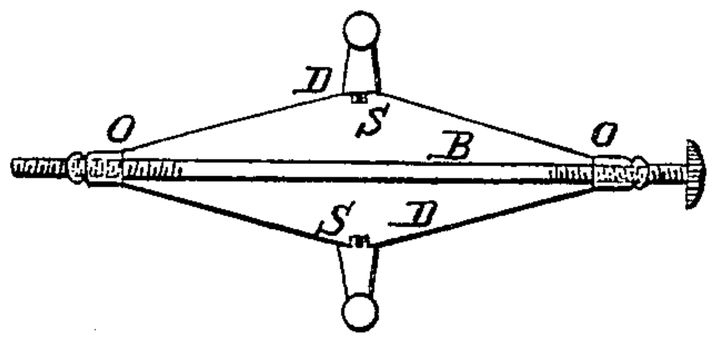
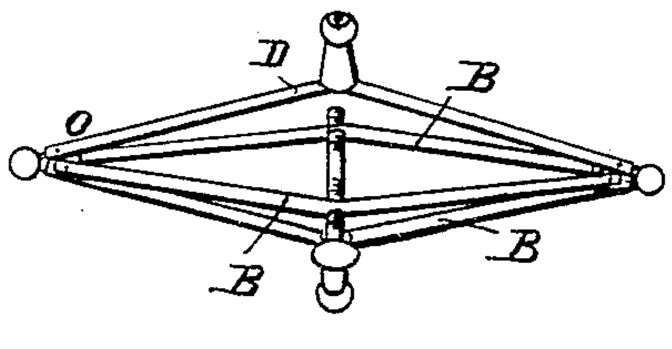


Fig. 3.



UNITED STATES PATENT OFFICE.

CHAS. W. RICE, OF WORCESTER, AND JOHN E. HARRINGTON, OF MILLBURY, MASSACHUSETTS.

COMPOUND PENDULUM.

Specification of Letters Patent No. 19,153, dated January 19, 1858.

To all whom it may concern:

Be it known that we, CHARLES W. RICE, of Worcester, in the county of Worcester and State of Massachusetts, and JOHN E. HARRINGTON, of Millbury, in the county and State aforesaid, have invented certain new and useful Improvements in Compensating Pendulums for Clocks, &c.; and we hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, due reference being had to the accompanying drawings by the letters marked thereon, in which drawings—

Figure 1 represents the pendulum complete. Figs. 2 and 3 represent different modes of applying the same principle to obtain the same effect.

The same letters in the different figures denote the same parts.

This invention relates to that class of pendulums called compensating, being constructed with a view to counteract the expansion and contraction of the pendulum rod from change of temperature.

To make our improved pendulum, construct the rod A in the usual form at the top for the purpose of suspending it, and connect the lower end of the rod to the hook L that holds the pendulum weight R by means of the strap D or its equivalent. This strap may be made in one piece passing around the ends of the bar B or of two pieces with their ends fastened to the ends of the bar as represented; this strap is connected between its two outer angles *o o* by an adjustable expansive bar or connection B, by which the distance between these two angles of the strap may be increased or diminished, thus opening or closing the upper and lower angles *s s* of the strap, which will increase or diminish the effect of the expansion of the connection B from change of temperature in raising or lowering the weight, for instance, if the connection B is lengthened by turning the nut C the outer angles *o o* of the strap will recede from the center and the upper and lower parts of it will be brought nearer to a straight line and in this situation a slight expansion of the connection B will raise the weight R a considerable distance. Now if by shortening the connection B we bring the outer angles *o o* of the strap nearer the center, the upper and lower parts of it will be bent more out of line and the same amount of expansion in the connection B will not raise the weight R near so far as before. Thus by altering the angles of the strap D we are enabled to adjust the effect of the expansion or contraction of the connection in raising and lowering the weight R so as exactly to counterbalance the expansion or contraction of the pendulum rod A thus securing a proper length of pendulum in different temperatures. The adjustable connection B may be made in two parts as in Fig. 1 and connected together by a nut C with right and left screws or as in Figs. 2 and 3 which are merely given as examples of some of the different ways of applying the same principle of operation to produce the same effects.

What we claim as our invention and desire to secure by Letters Patent is—

1. The adjustable connection B or its equivalent.

2. The strap D by altering the angles of which we are enabled to increase or decrease the effect of the expansion and contraction of the connection B in raising or lowering the weight R of the pendulum; all substantially as herein described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

CHAS. W. RICE.
JOHN E. HARRINGTON.

Witnesses:
P. C. BROWN,
P. EMORY ALDRICH.