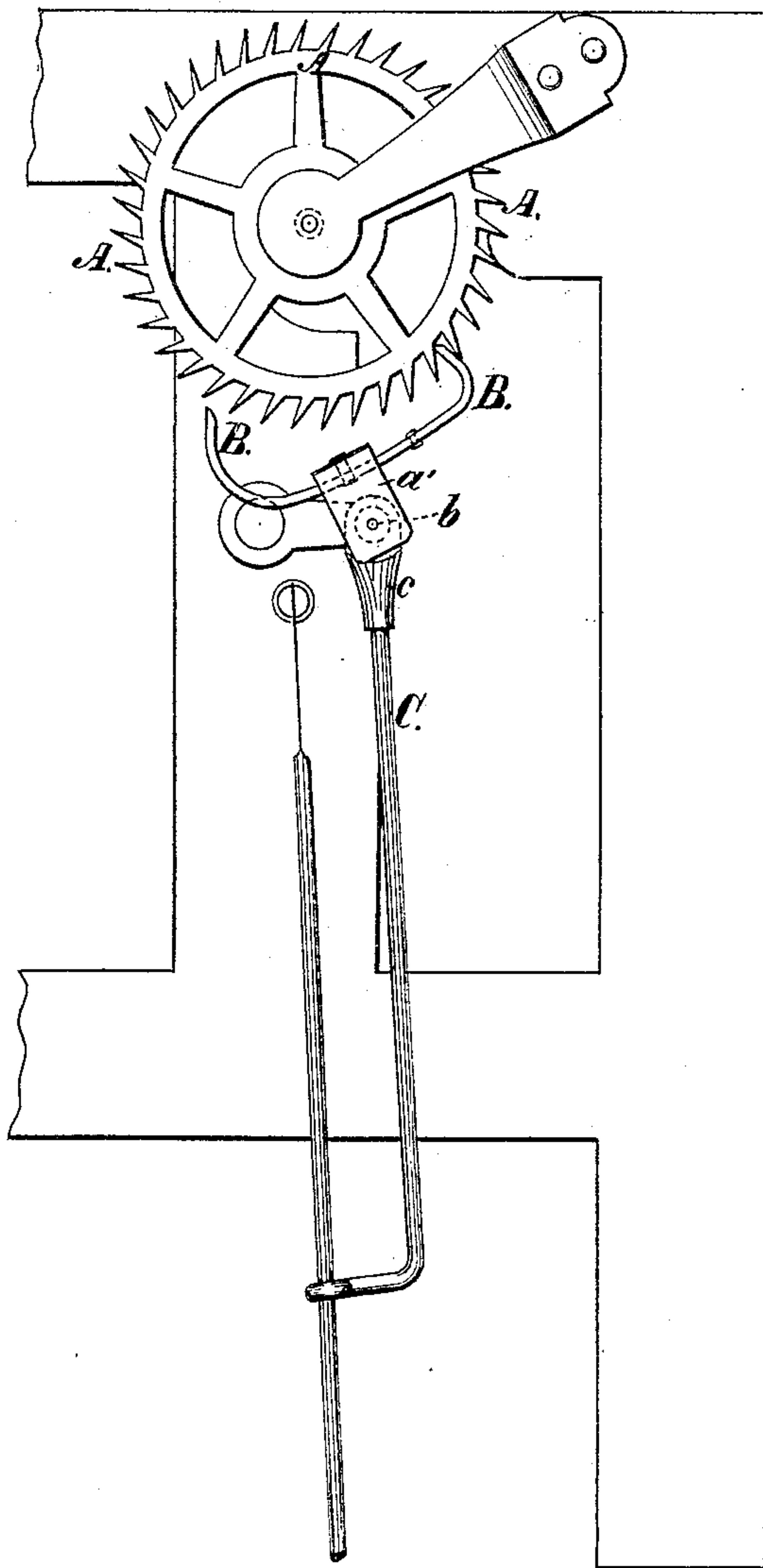


H. J. & W. D. DAVIES.  
Pendulum Clock.

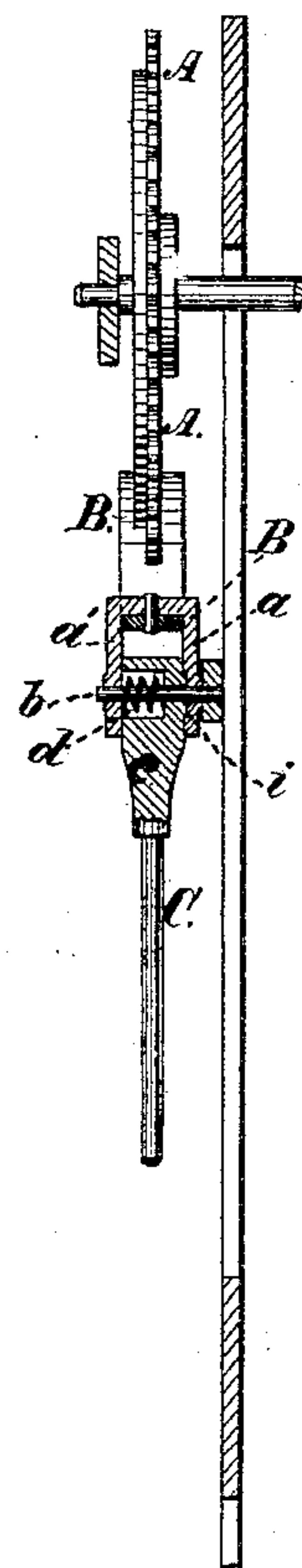
No. 199,804.

Patented Jan. 29, 1878.

*Fig. 1.*



*Fig. 2.*



**Witnesses:**

Henry Eichling  
Fred Haynes

**Inventor:**

Henry J. Davies  
Walter D. Davies  
by their Attorneys  
Brown & Allen

# 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. **199,804**, dated January 29, 1878; application filed December 26, 1877.

*To all whom it may concern:*

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

This invention relates to means of providing for the adjustment or correction of the beat of the pendulum, and may be considered as an improvement upon the invention which is the subject of our Letters Patent No. 197,832, dated December 4, 1877. In that patent the anchor of the escapement and the crutch-wire are shown separately pivoted to the same arbor within a yoke, to which neither is permanently attached, but against the opposite sides of which the anchor and crutch-wire are held by an interposed spring.

The object of this improvement is to simplify the construction and adapt it to an existing form of anchor; and to this end it consists in the combination, with an anchor having two ears, which receive the arbor which constitutes the anchor-pivot, of a crutch-wire the head of which is so fitted to the said arbor between the said ears as to be capable of movement about the axis of the said arbor independently of the anchor, and a spring applied between the head of the crutch-wire and one of the said ears, for the purpose of producing between the said head and the other ear an amount of friction which is sufficient to enable the crutch-wire to receive from the anchor the motion necessary to drive the pendulum, but which yet permits the necessary adjustment of the crutch-wire relative to the anchor to permit the correction of the beat of the pendulum.

Figure 1 of the drawings represents a front view of the escapement of a pendulum-clock having our improvement applied, and Fig. 2 is a transverse sectional view of the same.

A is the escape-wheel. B is the anchor, provided with the ears *a a'*, which contain the pivot-holes for the reception of the fixed arbor *b*, which constitutes the pivot of the anchor. These ears are represented as both formed, as is common, of a single yoke-like piece of metal straddling and riveted to the anchor.

C is the crutch-wire, having its head *c* fit-

ted between the ears or yoke *a a'*, and bored transversely to fit easily to the arbor or pivot *b*. The head *c* is also counterbored to receive the spiral spring *d*, which is placed within the said head, and which, surrounding the arbor *b*, bears against the ear *a'* of the anchor, and presses the head *c* against the ear *a* thereof, and so produces such a degree of friction between the said ear *a* and the head to enable the anchor to drive the crutch-wire in the ordinary operation of the escapement and pendulum.

The inside of the ear *a* is represented in Fig. 2 as slightly countersunk around its pivot-hole, to receive a protuberance provided on the corresponding face of the crutch-wire head, for the purpose of holding the crutch-wire and anchor together with their pivot-holes opposite each, and of thereby enabling both together to be placed on the arbor or pivot *b*.

In the ordinary operation of the clock, when the pendulum and anchor are properly in beat, the crutch-wire has no movement independently of the anchor, being held in fixed relation thereto by the friction produced between its head and the ear *a* by the spring *b*; but when correction of the beat is required, the adjustment of the crutch-wire relatively to the anchor may be made by hand, or may be made automatically by the bottoming of the anchor-pallets in the escape-wheel, or by the anchor coming in contact with suitably-provided fixed stops, the momentum of the pendulum acting on the crutch-wire after the bottoming of the pallets on the striking of the anchor against the stops being sufficient to produce the necessary adjusting movement of the crutch-wire relatively to the anchor, or the pivot or arbor *b*.

What we claim as our invention is—

The combination, with the arbor or pivot of the anchor and the ears *a a'*, or yoke rigidly attached to the anchor, of a crutch-wire fitted to the said arbor or pivot independent of the anchor, and a spring applied between one of the said ears and the head of the crutch-wire, substantially as described, for the purpose herein set forth.

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Witnesses:

VERNON H. HARRIS,  
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