

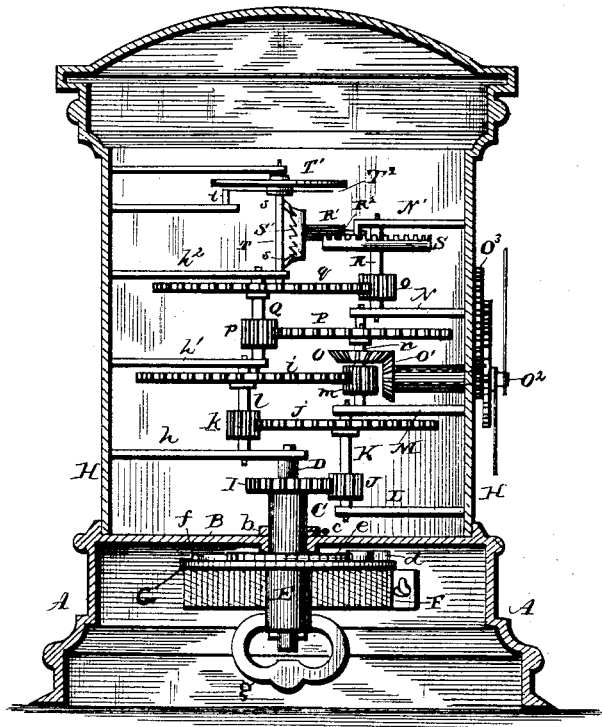
(No Model.)

A. E. HOTCHKISS.

CLOCK.

No. 259,859.

Patented June 20, 1882.



WITNESSES

*Herman Moran*  
*A. M. Wright*

INVENTOR

*A. E. Hotchkiss.*  
*R. H. A. Sugmann.*  
Attorney

# UNITED STATES PATENT OFFICE.

ARTHUR E. HOTCHKISS, OF CHESHIRE, CONNECTICUT.

## CLOCK.

SPECIFICATION forming part of Letters Patent No. 259,859, dated June 20, 1882.

Application filed December 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR E. HOTCHKISS, of Cheshire, in the county of New Haven and State of Connecticut, 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 pertains to make and use the same.

My invention relates to an improvement in clocks, the object being to provide a clock of such construction and relative arrangement of parts that the movement may be disposed in a case of small compass.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawing I have represented a view partly in side elevation and partly in vertical section of one form of clock constructed in accordance with my invention.

A represents the base portion of the clock-case, which may be made square, cylindrical, or of other form. The base is constructed with a top plate, B, or, instead of a plate, a bridge may be made to serve the same purpose.

C represents a sleeve mounted on the main-spring-arbor D and extending through the plate or bridge B, and retained against displacement by means of a collar, b, secured in place by a screw, c.

Upon the lower end of the mainspring D is secured a sleeve or hub, E, to which the inner end of the mainspring F is secured in the usual manner, the outer or free end of the spring being attached to the case or lower portion of the movement-frame.

A disk, G, is attached to the upper end of the hub or sleeve E, said disk having a pawl, d, pivoted thereto, which engages with a ratchet, e, on the lower end of the sleeve C, the pawl being retained in engagement with the ratchet by means of a spring, f, commonly employed for such purposes.

From the foregoing it will be readily understood that when the spring is wound the sleeve or hub E is rotated independently of the sleeve C, and when the spring is unwinding the sleeve C is locked to disk G by means of the ratchet and pawl before described. The sleeve E has

a thumb-piece, g, pivoted or rigidly secured thereto for winding the clock. The upper end of the main arbor is supported in the longitudinal bridge-piece h, fastened at one end to the frame or case H. A pinion, I, on the upper end of the sleeve C meshes with a pinion, J, on the pinion-shaft K, the latter being supported in the horizontal bridge-pieces L M. Wheel j on the shaft K engages a pinion, k, on the pinion-shaft l, mounted in the longitudinal bridge-pieces h h'. Wheel i on the pinion-shaft l meshes with a pinion, m, on the pinion-shaft n, supported by the bridge-pieces M N. Shaft n has a bevel-pinion, O, secured thereto, which meshes with a bevel-pinion, O', attached to the center shaft, O<sup>2</sup>, the latter serving to actuate the hands through the medium of the dial-work O<sup>3</sup>. The shaft n is provided with a wheel, P, which meshes with a pinion, p, on the pinion-shaft Q, supported by the horizontal bridge-pieces h' h<sup>2</sup>. Wheel q on the shaft Q meshes with a pinion, o, on the crown pinion shaft R, supported by the horizontal bridge-pieces N N'. Crown-wheel S on shaft R engages a pinion, R', on the shaft R<sup>2</sup>, to which is secured the escape-wheel S, the latter being actuated in the usual manner by the pallets s s, connected with the shaft T of the balance-wheel T', the balance-wheel spring T<sup>2</sup> being secured at t.

I have represented an ordinary marine escapement, but do not restrict myself to any particular form of escapement, or, in fact, to any particular arrangement of the train, as my invention relates to the construction and arrangement of any suitable train with respect to the case or frame within which it is placed.

It will be observed that the pinion-shafts are supported in horizontal bridges extending laterally from the opposite sides of the frame or case, and that the main arbor is arranged at right angles to the center shaft.

Instead of employing a short main arbor, I may have the main arbor extend upwardly through the top of the case and be provided at its upper end with a device for winding the clock, or a device for setting the clock, or with both winding and setting attachments.

If the main arbor should be made to extend upwardly through the top of the clock, the train would be arranged spirally around the

arbor. Again, the mainspring might be placed at the top of the clock and the other parts be arranged substantially the same; but I have shown the above as the better way.

5 The bridge-pieces might be made to extend to the opposite side of the movement by making them of bent or suitable form and perforating or otherwise arranging them, so as not to interfere with the general arrangement and  
10 working of the train.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I  
15 do not restrict myself to the exact construction and arrangement of parts shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters  
20 Patent, is—

1. In a clock-movement, the combination, with the mainspring located in the lower end of the case or frame and a mainspring-arbor arranged vertically, of the pinions of the train  
25 arranged vertically and supported in horizontal bridges attached to the opposite sides of the case or frame above the mainspring, and a center shaft arranged horizontally and extended through one side of the clock-frame,  
30 substantially as set forth.

2. The combination, with the mainspring arranged horizontally in a separate chamber at the bottom of the clock frame or case, and a mainspring-arbor arranged vertically and extending through a horizontal partition-plate  
35 into an upper chamber, of the pinions of the train arranged vertically and supported in horizontal bridges attached to the opposite sides of the upper chamber of the case, and a center shaft arranged horizontally and ex-  
40 tended through one side of the frame case, substantially as set forth.

3. In a clock, the combination, with the mainspring arranged horizontally in the lower portion of the clock case or frame, and a main-  
45 spring-arbor arranged vertically, of the pinions of the train arranged vertically and supported in bridges attached to the opposite sides of the frame, above the mainspring and arbor, a horizontal center shaft, and dial-works and  
50 hands connected with the outer end of the center shaft and located on the outside of the frame or case, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing wit-  
55 nesses.

ARTHUR E. HOTCHKISS.

Witnesses:

FRANK C. BOWEN,  
HERMAN MORAN.