

A. BANNATYNE.
CLOCK DIAL.

No. 385,160.

Patented June 26, 1888.

Fig. 1.

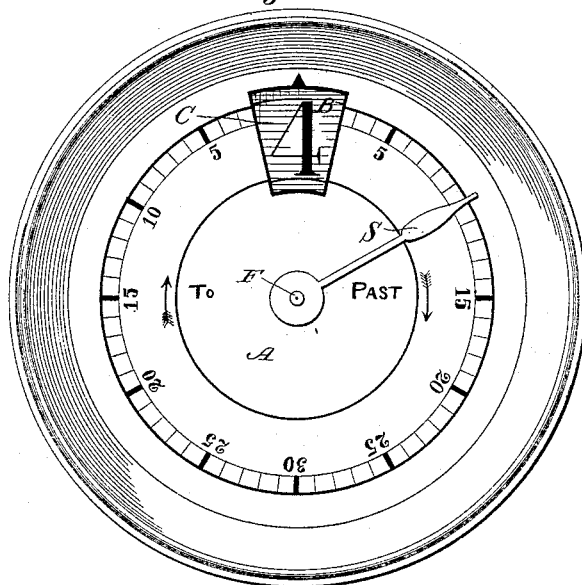
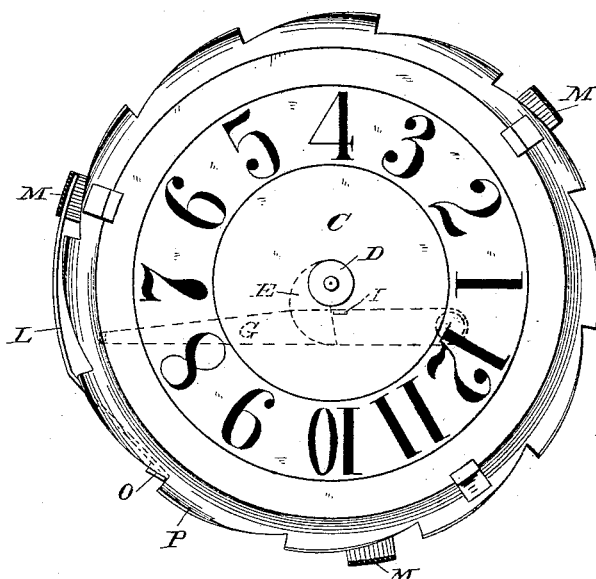


Fig. 2.



Witnesses:

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E. D. Smith.

Inventor.

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Fig. 3.

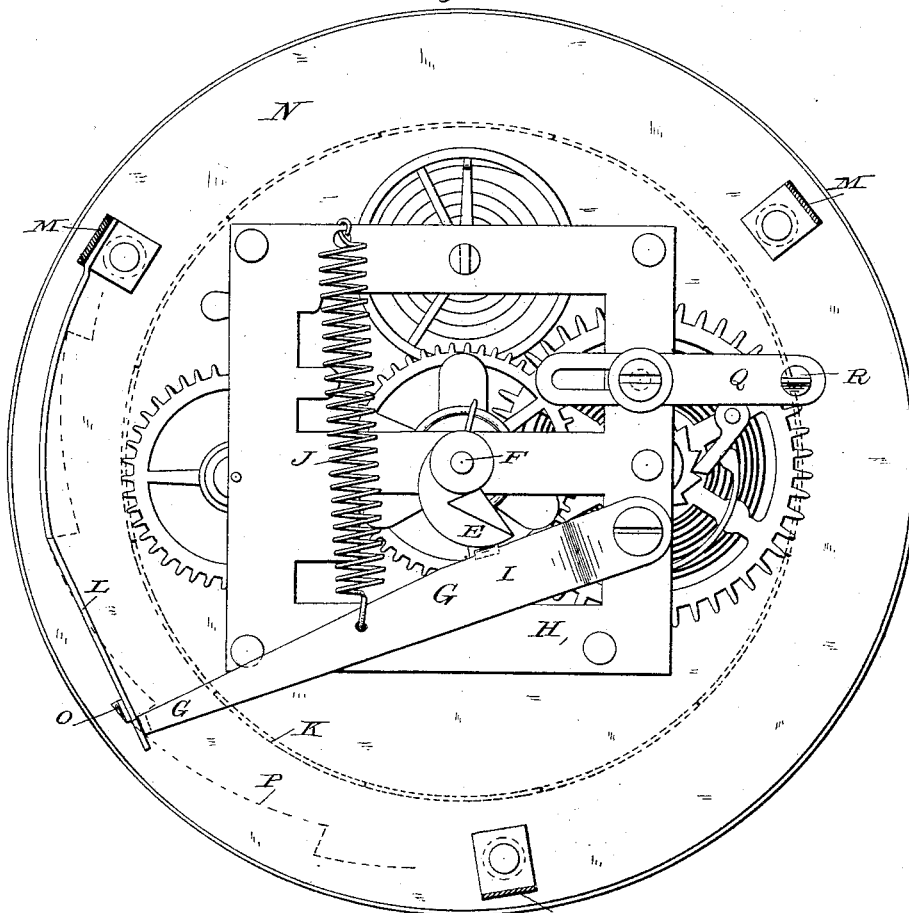
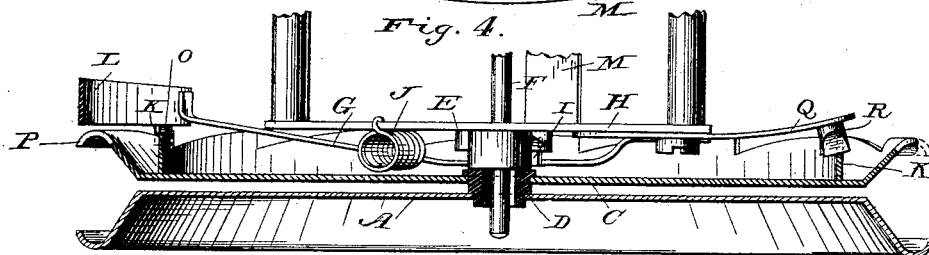


Fig. 4.



Witnesses:

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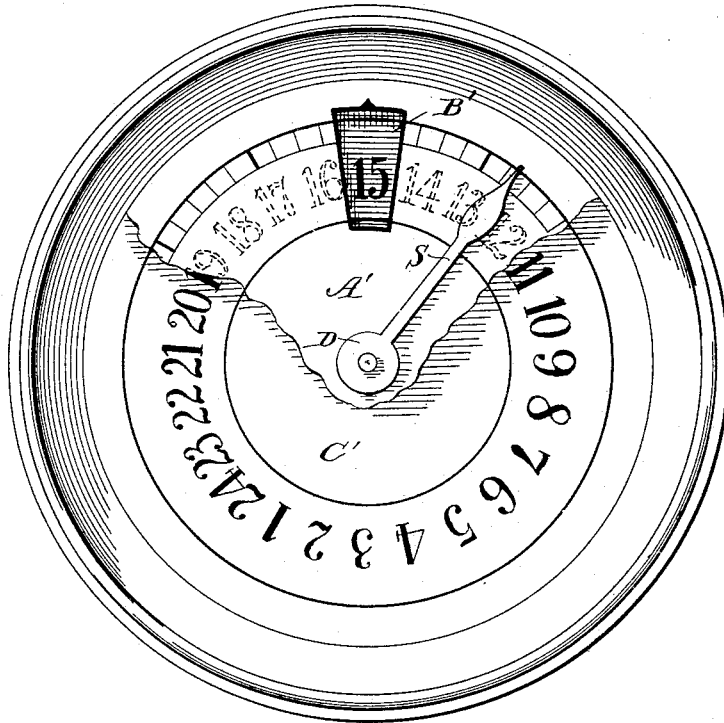
Archibuteo Bannatyne
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Fig. 5.



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UNITED STATES PATENT OFFICE.

ARCHIBALD BANNATYNE, OF WATERBURY, CONNECTICUT.

CLOCK-DIAL.

SPECIFICATION forming part of Letters Patent No. 385,160, dated June 26, 1888.

Application filed April 19, 1884. Serial No. 128,587. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD BANNATYNE, residing at Waterbury, in the county of New Haven and State of Connecticut, have
5 invented certain new and useful Improvements in Clocks; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

10 My invention relates to an improvement in that class of time-pieces in which the hour-indicating characters are exposed separately, the object being to produce a simple and reliable mechanism for such clocks.

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

20 In the accompanying drawings, Figure 1 is a view in front elevation showing the fixed and movable dials of a clock embodying my invention. Fig. 2 is a similar detached view of the movable dial, showing also the supports
25 of the fixed dial and a portion of the mechanism for operating the movable dial. Fig. 3 is an enlarged view showing the time mechanism and the mechanism for operating the movable dial. Fig. 4 is a view showing the operating
30 mechanism in plan and the dials in central horizontal section, and Fig. 5 is a view showing the application of my invention to a twenty-four-hour clock with a large portion of the fixed dial broken away to show the movable dial.

35 The fixed dial A is scaled to minutes, running up from 0 to 30 and from 30 down to 0, and has an aperture, B, formed above its center and in the line of the scaling. The movable dial C is virtually of the same size as the
40 fixed dial, and is journaled behind the same, so as to be concentric therewith upon a bushing, D, mounted therein, and is provided with a circle of figures, running from 1 to 12. Two concentric ratchets, K and P, located upon
45 the back of the movable dial, are each provided with twelve teeth, those of one ratchet pitching in one direction and those of the other ratchet pitching in the opposite direction. The teeth of the inner ratchet, K, are engaged
50 by a lever, G, pivoted to the front plate, H, of the time mechanism, and provided with an

arm, I, engaged by a cam, E, mounted upon the center shaft, F, of such mechanism and actuating the lever in one direction. A spiral spring, J, attached to the said lever and plate, 55 operates to actuate the lever in the opposite direction to hold it normally against the cam, and through it to shift the movable dial. The teeth of the outer ratchet, P, are engaged by the locking-finger O of a spring-arm, L, arranged to be engaged by the end of the lever G, and secured to one of the supports M, by which the fixed dial is attached to the back N of the clock. A finger, R, carried by a spring, Q, engages with the ratchet K and overcomes 65 the tendency of the lever G to turn the movable dial back as such lever rides up the teeth of such ratchet.

The cam E makes one revolution once an hour, and causes the lever G to ride up and drop behind one of the teeth of the ratchet K and to move the spring-arm L so as to disengage the locking-finger O thereof from the teeth of the ratchet P. At the end of the hour the lever drops off the cam and is at once retracted by the spiral spring J and moves the movable dial, so as to expose the character for the next hour through the aperture in the fixed dial, the movable dial being prevented from moving too far by the locking-finger O, which re-engages with the ratchet P the moment the lever G is retracted, as described, and so disengaged from the arm L.

The finger R, carried by the spring Q, is constantly engaged with the ratchet K, and overcomes the tendency of the lever G to turn the movable dial back as it rides up the teeth of the said ratchet. The engagement of the finger R with the said ratchet also prevents the dial from being moved by other disturbing influences.

The shifting mechanism may be arranged to shift the movable dial on or at any time during the hour, but preferably it will be done on the hour or on the half-hour. The scaling of the fixed dial should conform to the mode of operation adopted. By making the movable dial concentric with the fixed dial and virtually of the same size as the same I am enabled to employ as large or larger characters as would ordinarily be used upon an ordinary dial of the same size. 100

It is apparent that my invention is applicable to clocks arranged to indicate "standard time," under which the hours are counted from 1 up to 24, as shown by Fig. 5 of the drawings.

I am aware that the combination, with a fixed dial having an aperture in it, of a movable dial located back of such fixed dial and rotated to separately expose hour-indicating characters through the aperture thereof is not new. I am also aware that a dial carrying a ratchet is not new when operated by a lever and a cam secured to the center arbor of a time-piece. I do not therefore broadly claim such constructions; but,

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

1. In a clock, the combination, with a fixed dial having an opening in it, of a movable dial located behind such fixed dial, two ratchets carried by the movable dial, and means, substantially as shown, for engaging with such ratchets to hourly shift the movable dial and limit its forward movement, substantially as set forth.

2. In a clock, the combination, with a fixed dial having an opening in it, of a movable dial located behind such fixed dial, two ratchets carried by the movable dial, a locking-finger engaging with one ratchet, and a lever engaging with the other ratchet to turn the movable dial and operating to disengage such locking-finger from the ratchet with which the same engages, substantially as set forth.

3. In a clock, the combination, with a fixed dial having an opening in it, of a movable dial located behind such fixed dial, two ratchets carried by the movable dial, a locking-finger engaging with one ratchet, a lever engaging with the other ratchet to turn the movable dial, and a finger engaging with the ratchet engaged by the lever and holding the dial between the intervals of its hourly actuations, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARCHIBALD BANNATYNE.

Witnesses:

I. H. CHASE,
H. L. WADE.