

(No Model.)

W. W. BARRETT.
TIME PIECE DIAL.

No. 428,588.

Patented May 27, 1890.

Fig. 1.

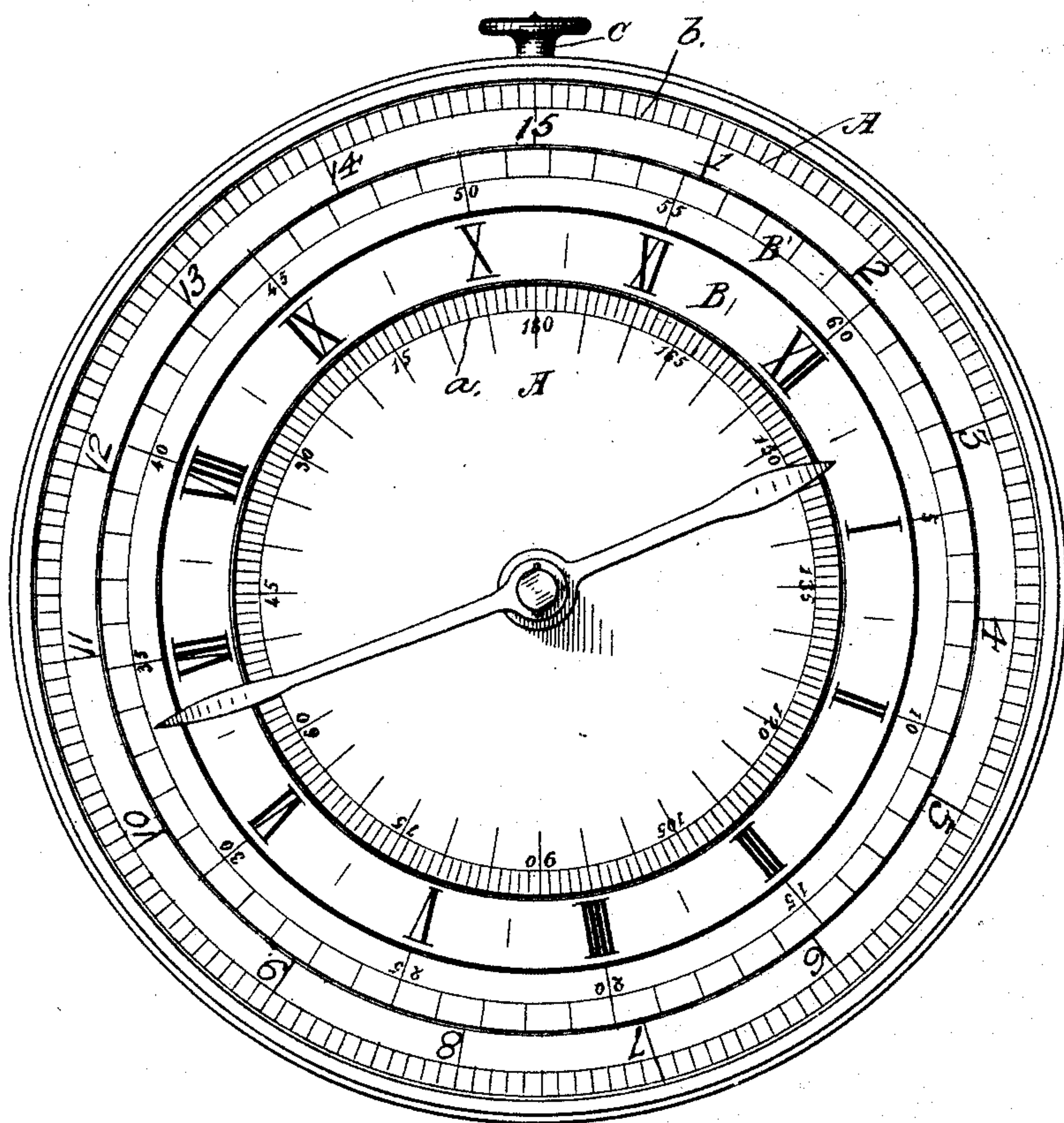
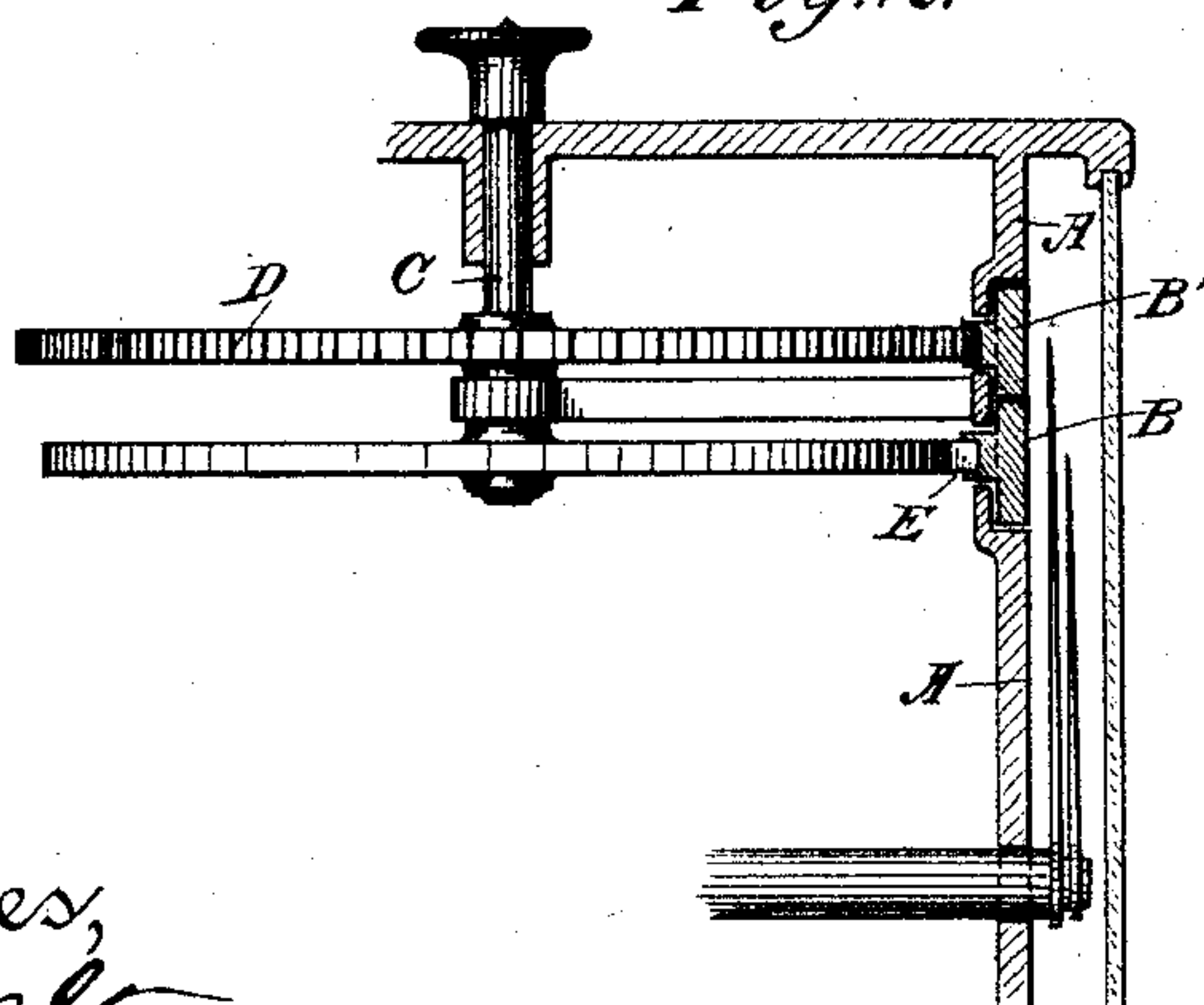


Fig. 2.



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UNITED STATES PATENT OFFICE.

WALTER W. BARRETT, OF PORTLAND, MAINE.

TIME-PIECE DIAL.

SPECIFICATION forming part of Letters Patent No. 428,588, dated May 27, 1890.

Application filed April 16, 1889. Serial No. 307,465. (No model.)

To all whom it may concern:

Be it known that I, WALTER W. BARRETT, of the city of Portland, county of Cumberland, State of Maine, have invented an Improvement in Dials for Time-Pieces; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to dials for time-pieces; and it consists of a fixed plate having an outer circle divided into degrees of longitude and an inner circle divided into minutes of longitude, movable concentric dials graduated into divisions of time, an hour-hand for indicating the hours of the day and degrees of longitude, and a minute-hand for indicating the minutes of time and the minutes of longitude, whereby at any indicated meridian of longitude the time may be readily ascertained by the simple movement of the dials.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my dial. Fig. 2 is an enlarged view showing a gearing by which two dials may be turned at different rates.

A is a circular disk, made of any suitable material and of a size corresponding with the time-piece, which may be an ordinary watch, chronometer, or clock. This disk is divided into an inner circle *a* and an outer circle *b*, the inner circle being graduated with the number of degrees corresponding with the number of hours which are to be indicated upon the dial of the time-piece. If twenty-four hours are indicated upon this dial, the disk may be graduated to three hundred and sixty degrees. If but twelve hours are indicated upon the dial, the disk will be graduated to one hundred and eighty degrees. The outer circle is divided into divisions of longitude corresponding to the number of minutes of time, whereby each indicated minute on the dial indicates fifteen miles of longitude.

B is the time-dial, which may consist of a ring of sufficient width, and it may either be let into an annular groove in the disk so that its face lies flush with the disk, or it may lie above it, inside, or outside, as may be found most convenient. This dial is adapted to be turned in any convenient manner about the common center of itself and the disk, and also about the post by which the hands of the time-

piece are moved. In addition to the hour-dial, a minute-dial B' is also used. It will be concentric with the hour-dial and will be turned twelve times as fast. The arrangement of the parts described is such that the hour-hand of the time-piece will not only indicate the hours of the day, but also indicate the degrees of longitude, while the minute-hand, in addition to its disclosing the minutes of time, will also indicate the minutes of longitude.

The dials may be moved in any suitable manner. I have here shown them as having teeth upon the rear or lower face, and a short shaft or stem C, passing into the stem-post of the watch, or into the side of the time-piece, if desired, is provided with a pinion D, the teeth of which correspond with the teeth upon the minute-dial, so that by turning this shaft and pinion the dial may be advanced one way or the other with relation to the graduated disk. The hour-dial is advanced by a mutilated gear having a single tooth E, which engages with the teeth of its dial once at each revolution, and thus advances it one tooth point when the minute-hand has advanced a complete revolution.

For nautical purposes, the time-piece will be set to Greenwich or standard time, and it will be manifest that it will run, if properly adjusted, and keep this time. If it is desired to know the actual time in any given longitude, it is only necessary to know the longitude of the place where the time is desired, and then by turning the dial-plates B and B' (which move independently of the meridian disk and hands) until the zero, which upon the dial is the 12-o'clock mark, is brought opposite the longitude of the place designated, the hands of the time-piece will immediately show upon the dial in its new position the actual time of this place.

In traveling across a country which, like the United States, is divided into time-divisions, it will not be necessary to change the hands of the watch in any way; but the dial may be turned upon entering either of the divisions, so that the time will be exactly indicated upon it without any further alterations.

In going to the west from any given point, the dial will be turned to the right with ref-

erence to the meridian circle, and in going to the eastward the dial will be correspondingly turned to the left.

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

1. In a time-piece, a fixed disk having an inner and outer circle, the inner circle being divided into degrees of longitude and the outer circle being divided into minutes of longitude, concentric dials, one of which is graduated into hours of time and the other into minutes of time, an hour-hand for indicating the hours of the day and degrees of longitude, and a minute-hand indicating the minutes of time and the minutes of longitude, substantially as described.

2. In a time-piece, a fixed disk having an

inner circle graduated into degrees of longitude and an outer circle graduated into minutes of longitude, a movable dial divided into hours of time, and a second moving dial concentric with the hour-dial and divided into minutes of time and adapted to be moved twelve times as fast as the hour-dial, an hour-hand for indicating the hours of the day and the degrees of longitude, and a minute-hand for indicating the minutes of time and the minutes of longitude, substantially as herein described.

In witness whereof I have hereunto set my hand.

WALTER W. BARRETT.

Witnesses:

S. H. NOURSE,
H. C. LEE.