No. 848,547. PATENTED MAR. 26, 1907.

A. H. HADLEY & W. L. GRAY.

CLOCK.

APPLICATION FILED APR. 14, 1906.

Fig. 2.

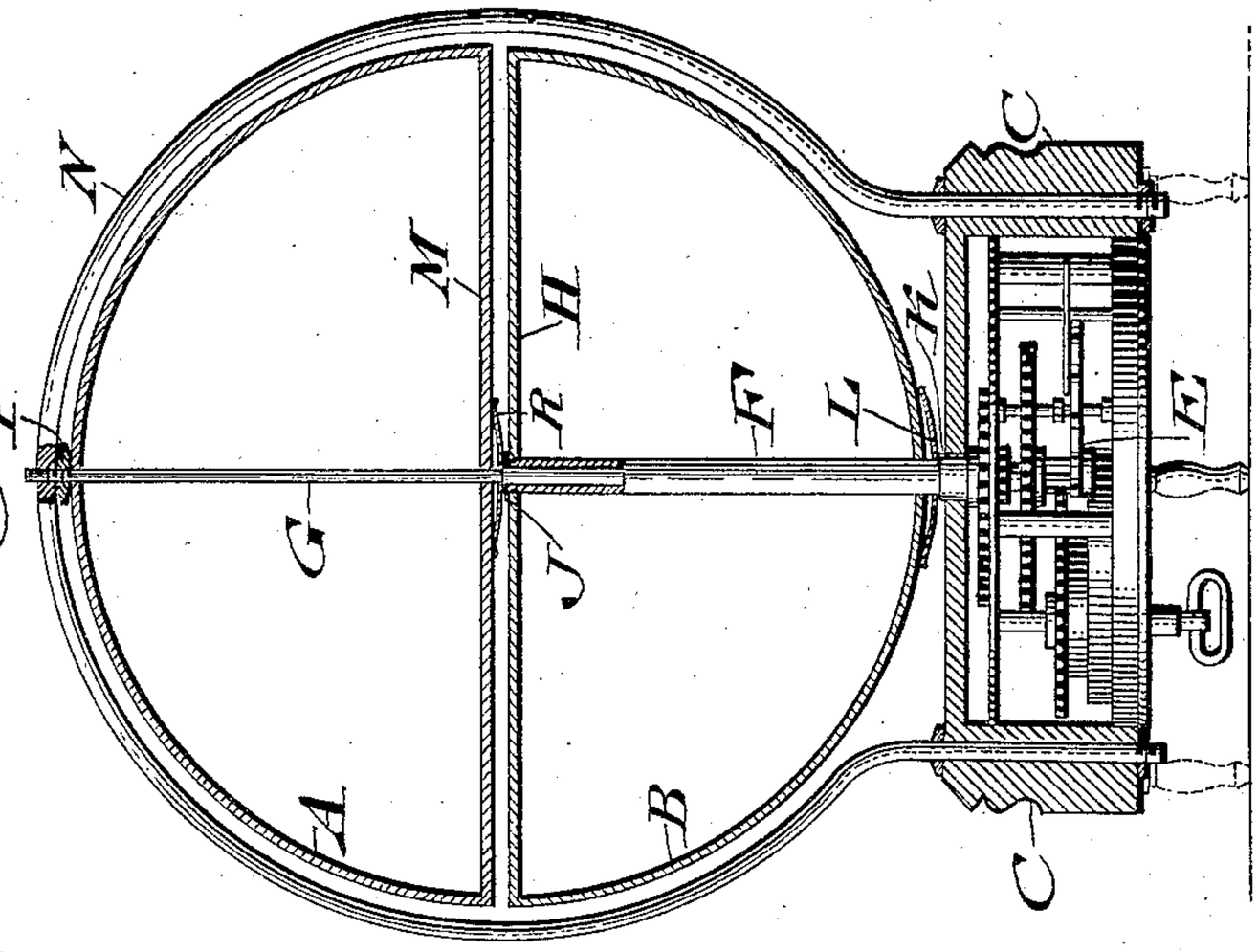


Fig. 1.

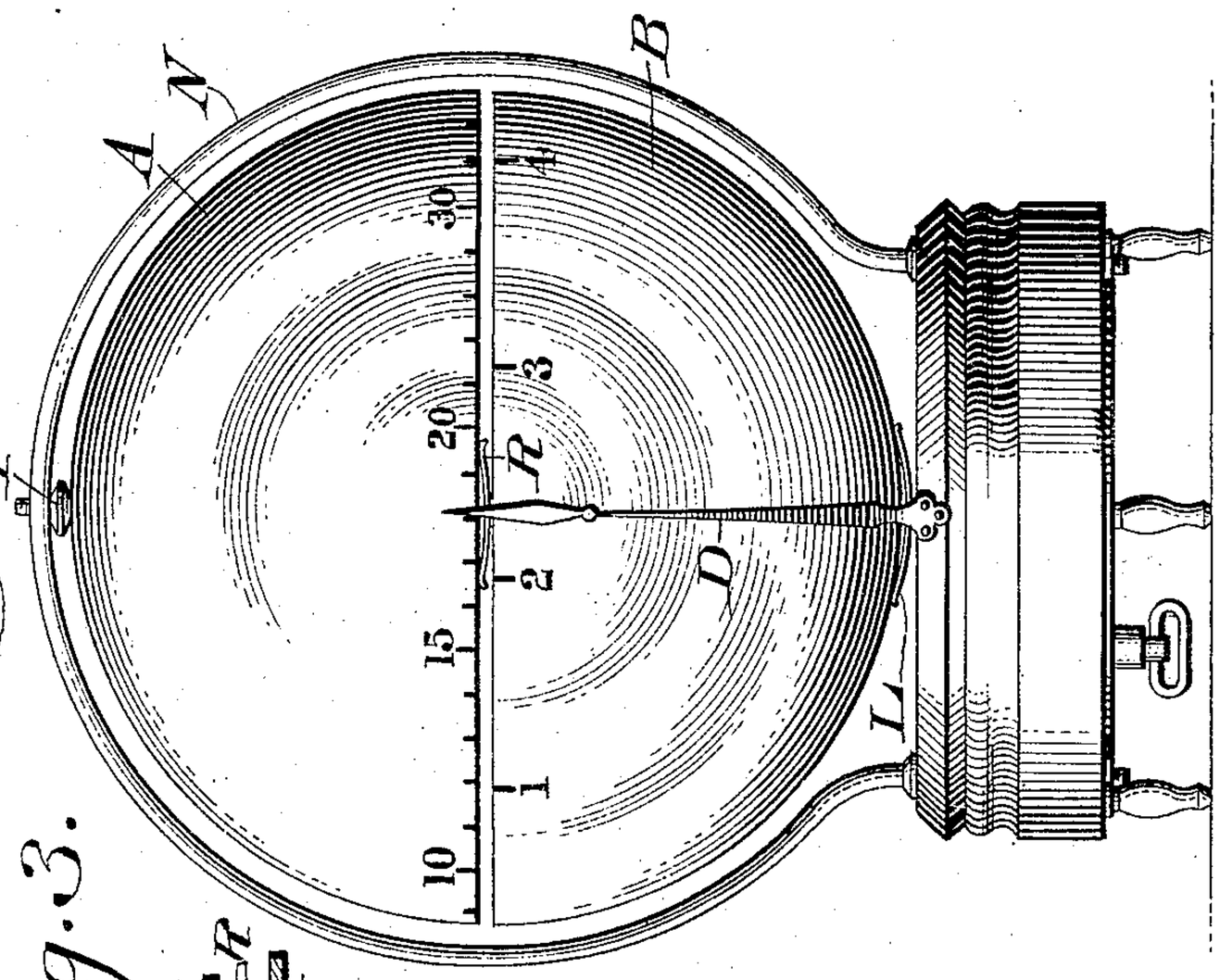
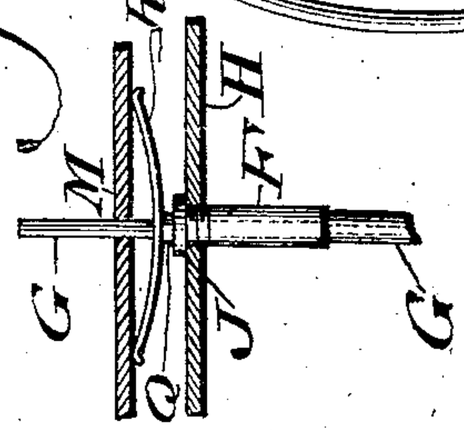


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CLOCK.

No. 848,547. Specification of Letters Patent. Patented March 26, 1907.

Application filed April 14, 1906. Serial No. 311,642.

To all whom it may concern:

Be it known that we, ARTHUR H. HADLEY and WILLIAM L. GRAY, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Clock, of which the following is a specification.

Our invention consists of a clock composed of rotatable dials, one for the hours and the other for the minutes, an arbor for each dial, the arbors being engaged by proper members of the train or clock-gearing, means for connecting the dials with the respective hours, and means for sustaining and steadying the arbors.

It also consists in making the dials of the form of hollow bodies, preferably hemispherical, so as to be transparent for effectively distinguishing the numbers or characteristics thereon and also adapting the dials to be formed of different colors for distinguishing the same.

It also consists of details of construction, as will be hereinafter described.

Figure 1 represents a side elevation of a clock embodying our invention. Fig. 2 represents a vertical section thereof. Fig. 3 represents a vertical section of a detached portion, on an enlarged scale.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A and B designate the dials of a clock, the same being of the form of hemispheres, comprising together comparatively a complete sphere and having at the equatorial portion of one hemispheres the number of hours and on that of the other hemisphere the number of minutes thereof.

C designates the base of the clock, above which are supported the hemispheres A B, as will be hereinafter set forth.

D designates an index or hand, which in the present case rises from and is connected with the base, its point being adjacent the hour and minute numbers on the hemispheres.

Connected with the train E, which occupies the base C and is properly operated by members of the same, are the arbors F and G, the arbor F being tubular and telescopically receiving the lower portion of the arbor G. The arbor F passes through what may be termed the "bottom" of the hemisphere B and the cross-plate H at the top thereof. The upper end of said arbor F is screw-threaded and receives the nut J, which bears against said plate H. The portion of said arbor F below the hemisphere B has a shoulder K, on which is rested the spring L, which bears upwardly against the bottom of said hemisphere, it being evident that when the nut J is tightened the spring L will be forced into frictional contact with the hemisphere, adjusted by said nut, and as the latter tightens against the plate H it is evident that the hemisphere is connected with the sleeve or arbor F, and so receives its motion relatively to the hours of a clock.

The arbor G is continued above the arbor F and passes through the cross-plate M on what may be termed the "bottom" of the hemisphere A and also through the top of the latter, above which it extends, when its upper end enters the crown of the yoke N, which encircles the hemispheres and has its legs firmly connected with the base C. Interposed between said crown and the top of the adjacent hemisphere is the nut P, which engages a threaded portion of the upper end of the arbor G. On the portion of said arbor G above the upper end of the arbor F is a shoulder Q, on which is rested the spring R, which bears upwardly against the plate M, it being evident that when the nut P will be forced into frictional contact with said plate, adjusted by said nut and as the latter tightens against the top of the hemisphere A, it is evident that the latter is connected with the arbor G and so receives its motion relatively to the minutes of a clock. It will also be seen that the upper end of the arbor G is freely mounted in the crown of the yoke N and so the latter serves to form a bearing for said end and assists to steady said arbor as well as the arbor and renders the hemispheres true in their rotations. Furthermore, the hemispheres are made hollow, whereby they are practically transparent and may, if desired, be illuminated, so that the numbers of the hours and minutes may be readily perceived, and they may be made of different colors or material for distinguishing purposes, and the material may be thin, so that the weight of the clock may be reduced.

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

1. In a clock, rotating dials, a telescoping arbor therefor connected with each of said

dials, a rigid device engaging one end of said arbor and a resilient device engaging the other end thereof, said devices being adapted to bear against an adjacent member of the dial.

2. In a clock, a plurality of separately-rotating dials, an arbor connected with one dial, an arbor connected with the other dial, said arbors being in engagement with members of a clock-train and means including resilient devices on said arbors and engaging the bottoms of the dials for connecting said arbors with said dials.

3. In a clock, a plurality of separately-rotating dials, arbors for respectively operating said dials and means for connecting said arbors with said dials consisting each of a resilient device at one end of an arbor and a rigidly-acting device at the other end thereof, said devices engaging a member of the adjacent dial.

4. In a clock, a plurality of separately-rotating dials, an arbor for each dial, one arbor passing freely through the other arbor, said arbors being adapted to be engaged with members of a clock-train, a rigid device and a resilient piece on opposite ends of each arbor, said device and piece being adapted to tighten against opposite portions of the adjacent dial.

5. In a clock, a plurality of separately-rotating hemispherical dials, an arbor for each dial, the arbors being telescopic and adapted to be engaged with members of a clock-train, means including resilient devices on said arbors and engaging the bottoms of the dials for connecting the arbors with said dial, a yoke in which one of said arbors is mounted, a base to which said yoke is secured and an adjusting device on one of said arbors between the yoke and adjacent dial.

6. In a clock, a base, a yoke thereon, a clock-train in said base, separated dials, a tubular arbor and an arbor telescoped therein, both of said arbors being connected respectively with said clock-train, the upper end of the telescoped arbor being engaged with said yoke, and adjustable means on said arbor between the yoke and the adjacent dial.

7. In a clock, a base, a yoke thereon, a clock-train in said base, separated dials, a tubular arbor and an arbor telescoped therein, both of said arbors being connected respectively with said clock-train, the upper end of the telescoped arbor being engaged with said yoke, adjustable means on said arbor between the yoke and the adjacent dial, and a resilient device on each arbor engaging the adjacent portion of its dial.

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