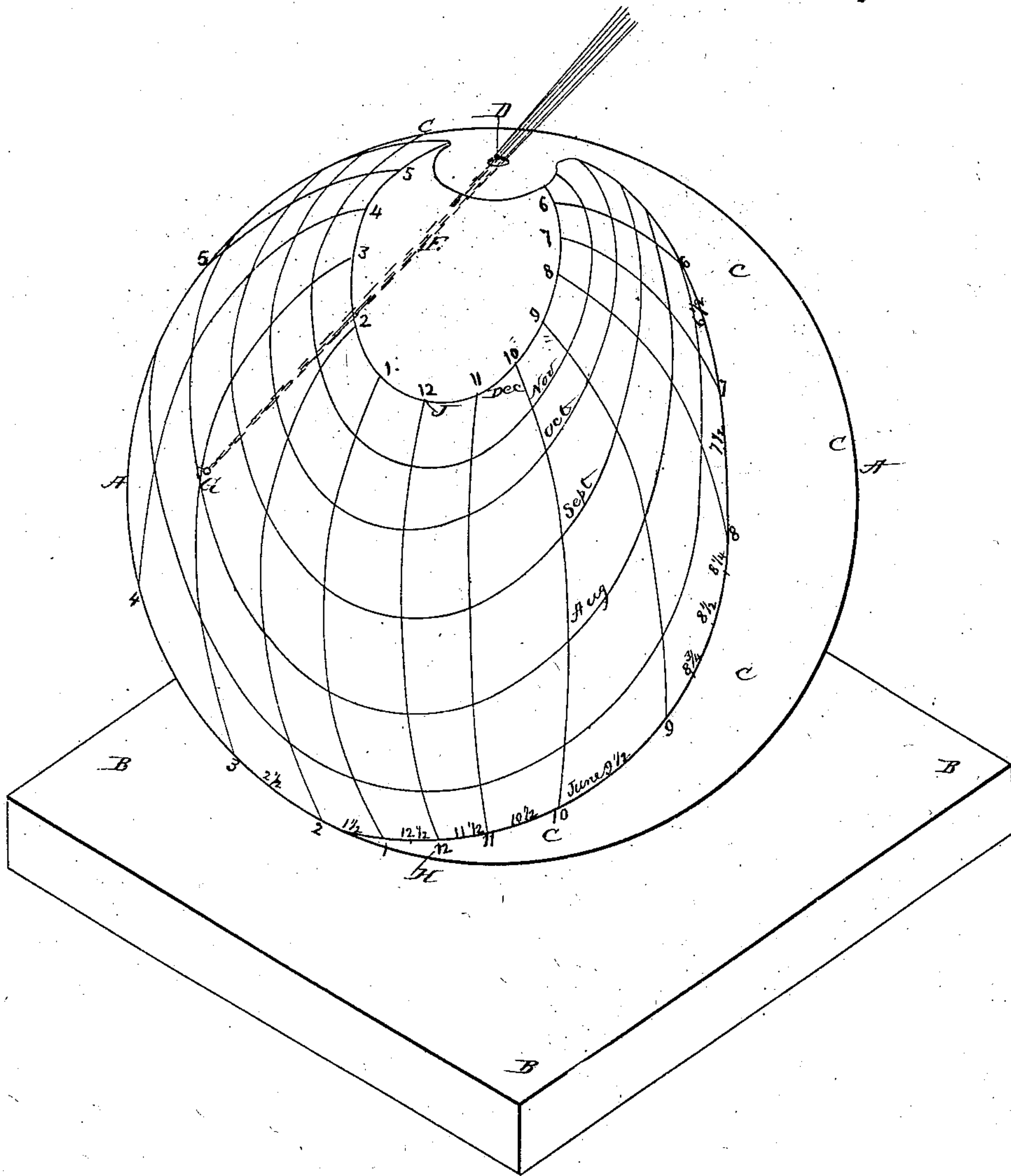


J. Johnson,
Sun Dial.
No. 89,585. *Patented May 4. 1869.*



Witnesses
Moses Emery
F. W. Giffill

Inventor
John Johnson

United States Patent Office.

JOHN JOHNSON, OF SACO, MAINE.

Letters Patent No. 89,585, dated May 4, 1869.

IMPROVEMENT IN SUN-DIALS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN JOHNSON, of Saco, in the county of York, and State of Maine, have invented a new and useful Improvement in Sun-Dials; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

My improvement relates to sun-dials of a globular form, the gnomon being dispensed with, and the construction very much simplified, the whole dial, without the stand, being in one piece.

It consists of a globe of ground glass, one side of which is rendered opaque by a coating of black paint. This is the southern side, when placed in the proper position for use.

The observer, standing on the northern side, sees, upon the ground glass, a small illuminated spot, the position of which, both in a horizontal and vertical direction, is variable with the change of the seasons, and with the hours of the day.

This bright spot is caused by a pencil of the sun's rays, which passes through an aperture in the top of the hollow glass globe, the border of the hole being painted black, so as to cause a sharp definition of the spot on the northern side of the globe, and thus indicate the hour by illumination, instead of shadow.

In the drawing, the globe A is represented, supported by the stand B.

The side toward the south is coated with black paint, C C, which excludes the sunlight, and partially obscures the interior of the globe.

At the top of the globe there is a small aperture, D, through which the rays of the sun enter, as shown at E, and fall upon the translucent ground glass at G.

It is obvious that the bright spot, where the rays impinge upon the glass globe, will, in the morning, be seen on the right, and in the afternoon on the left side, while at noon it will be near the middle, and also at a lower point on the globe.

In the course of a year, the bright spot passes over the whole surface of the glass globe, occupying a different place every day, the position depending upon the inclination of the earth's axis and its diurnal revolution.

At noon on the 21st of June, the spot is at the lowest point on the globe, marked H, and, at the winter-solstice, it is at the highest point, marked J.

It will be perceived, from this description, that this dial will give equated or clock time without requiring any allowance or correction to be made for what is termed "the difference between the sun and clock."

In this case, the hour-lines, marked 1, 2, 3, 4, &c., will not be in the direction of true parallels of longitude, but will be slightly curved to the right or left, the extent of the curvature being the greatest when there is the most difference between the sun and clock.

What I claim, and desire to secure by Letters Patent, is—

A translucent hollow globe, having an aperture at the top, through which a pencil of rays from the sun may pass, to mark time, the globe being rendered opaque at the top, and on the side next to the sun, for the purpose of giving a perfect delineation of the bright spot, as it traverses the surface of the globe.

JOHN JOHNSON: [L. s.]

Witnesses:

MOSES EMERY,
F. W. GUPTILL.