2 Sheets--Sheet 1.

M. McVICAR.

Terrestrial-Globe.

No. 168,514. Patented Oct. 5, 1875.

Fig. 1.

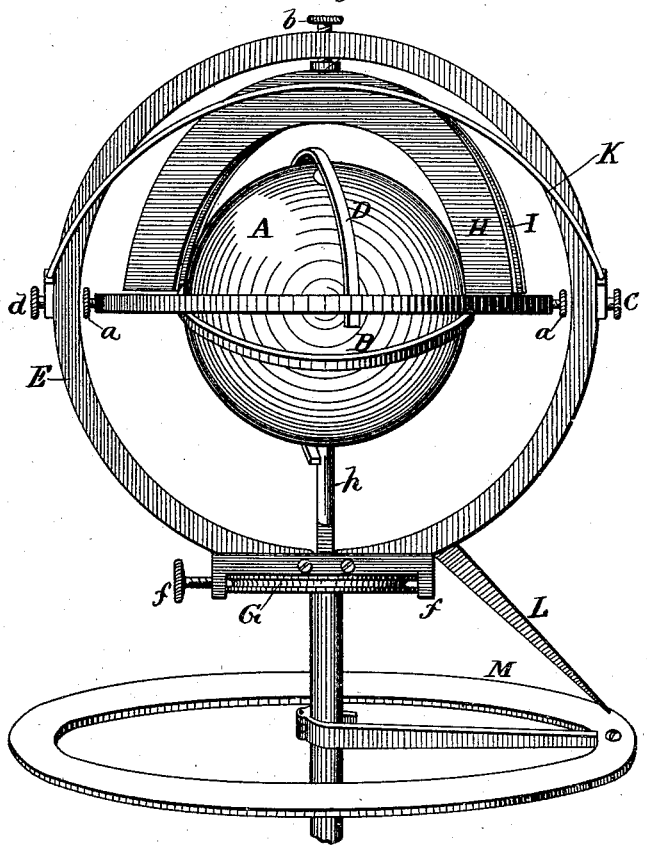
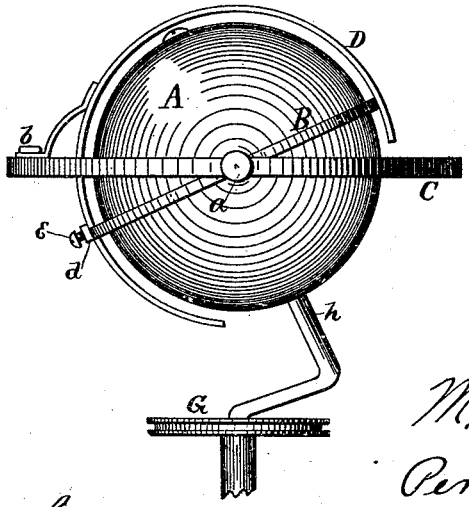


Fig. 2.



WITNESSES

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Fig. 3.

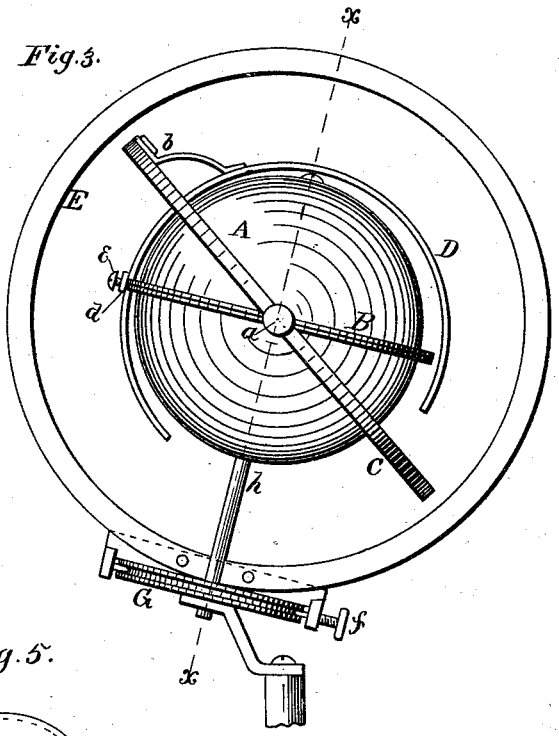


Fig. 5.

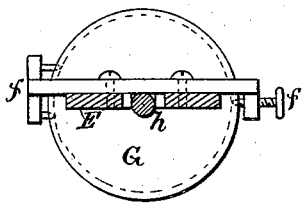
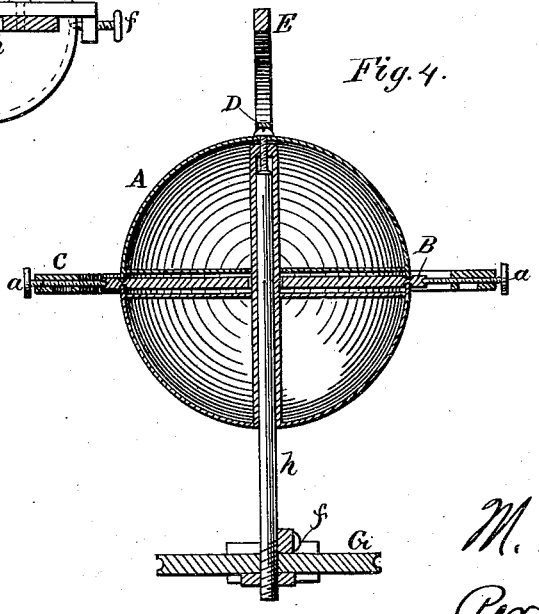


Fig. 4.



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UNITED STATES PATENT OFFICE

MALCOLM McVICAR, OF POTSDAM, NEW YORK.

IMPROVEMENT IN TERRESTRIAL GLOBES.

Specification forming part of Letters Patent No. **168,514**, dated October 5, 1875; application filed August 4, 1875.

To all whom it may concern:

Be it known that I, MALCOLM McVICAR, of Potsdam, county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Globes, of which the following is a specification:

My invention relates to globes used for purposes of illustration in geography and astronomy; and it consists in the construction of a globe with revolving equator, horizon, or circle of illumination, a three-quarter and a full meridian, a semicircle of illumination and twilight, a semi-vertical circle, a pointer, and a circle corresponding in its general structure with the horizon of ordinary globes, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which forms a part of this specification, and in which—

Figure 1 is a side elevation, showing my invention. Fig. 2 is a side view, showing the globe with revolving equator B, circle of illumination C, and three-quarter meridian D in use. Fig. 3 is a side view, showing the parts of Fig. 2 in a different position, with the full meridian E attached. Fig. 4 is a section taken upon the line *x x* of Fig. 3. Fig. 5 is a detailed view, showing the manner of attaching full meridian E to the circle G.

A represents an ordinary terrestrial globe, such as are used for purposes of illustration in geography and astronomy. B is a band or circle of brass or other suitable material, designated the revolving equator, which may revolve in a groove on the globe, or divide the globe into the northern and southern hemispheres, and revolve in the axis of the globe as a center. C is a circle, designated the horizon or circle of illumination, which is attached to the revolving equator B by two screws, *a a*, which form pivots on which it revolves. D is a three-quarter meridian, which is attached to the circle C ninety degrees from the pivots *a a*, and which extends one hundred and eighty degrees on one side and ninety degrees on the other side of the circle, passing on the side where it is ninety degrees through an eye, *d*, in the circle C, where, by means of a screw, E, it can be held in position, and thus hold the circle C, to which it is attached, in any desired position. The three-quarter meridian D is attached to the circle C by means of a screw, *b*, or otherwise. E is a full meridian, attached by clamp-screws *f f* to a circle, G, which may stand horizontally, or at any desired angle to the horizon, and in which the axis *h* of the globe is fastened perpendicular to its face, or at any desired angle. By means of the clamp-screws *f* and circle G the meridian can be moved into any desired position. H and I are respectively semicircles of illumination and twilight. They are attached to each other parallel, and at a distance of eighteen degrees. They are also attached by the screw *b* to the inside of the meridian E, at a point one hundred and eighty degrees from that on which it revolves in the circle G. They revolve on the screw *b*, and can be made to stand at any angle to the meridian E. K is a semi-prime vertical circle, attached by screws *c* and *d* to the outside of the meridian E, at points ninety degrees respectively from the point on which the meridian turns on the circle G. L is a pointer, attached to the meridian E near the point on which it turns on the circle G, and directed to the degrees marked on the circle M. M is a circle, of any desired size, parallel to the horizon, and placed at any convenient distance below the circle G, having on its face a series of graduated concentric circles, such as are usually placed upon the "wooden horizon" of ordinary globes.

The equator B is used to give to the horizon-circle C a free motion from east to west, and from west to east. By means of this motion and the motion of the circle C on its own axis, said circle can be made instantaneously to represent the horizon of any place on the globe; also, any position of the circle of illumination, the ecliptic, the east and west circle of any place, and any great circle on the globe. The meridian E and the semicircles H and I, the pointer L, and the circle M are used in combination to show the change of the seasons, length of day and night, and length of twilight, for any given place at any given

time, apparent path of the sun, and the places to which he will be vertical on any given day of the year, and problems similar to these.

The meridian E and semi-prime vertical circle K are used in combination to show the prime vertical of any given place, the relations of the rising and setting sun to the east and west, points of a place in any latitude, and problems similar to these.

By the combination of the meridians D and E and circles B and C, all problems can be solved that can be solved on any globe with the brass meridian and wooden horizon. All solutions can be made, also, with the globe representing the real position of the earth, while with the ordinary wooden horizon the globe is constantly changed out of its real position.

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

1. In a globe, the revolving equator B and circle C, suspended on the equator by the two points *a a*, so that, by its own motion on said points and the motion of the equator, the circle can be made to represent any great circle on the globe, substantially as set forth.

2. The movable three-quarter meridian D, fastened to the circle C, substantially as and for the purposes set forth.

3. A movable meridian, E, attached by a clamp-screw, in combination with the circle G, standing horizontally or at any desired angle to the horizon, and in which the axis of the globe is fastened perpendicular to its face, or at any desired angle, as herein set forth.

4. The semicircles of illumination and twilight H and I, fastened to the movable meridian E, substantially as and for the purposes set forth.

5. The semi-prime vertical K, fastened to the movable meridian E, substantially as and for the purposes set forth.

6. The combination, with a globe, A, of the movable equator B, pivoted circle C, meridians D E, semicircles of illumination and twilight H and I, semi-prime vertical K, pointer L, and the graduated circle M, all constructed and arranged substantially as and for the purposes herein set forth.

7. In a globe, a revolving equator, revolving independently of the globe, but on the axis thereof as a center, substantially as shown and described.

In testimony that I claim the foregoing as my invention, I hereunto affix my signature this 20th day of July, 1875.

MALCOLM McVICAR.

Witnesses:
H. W. OSBORN,
W. E. OSBORN.