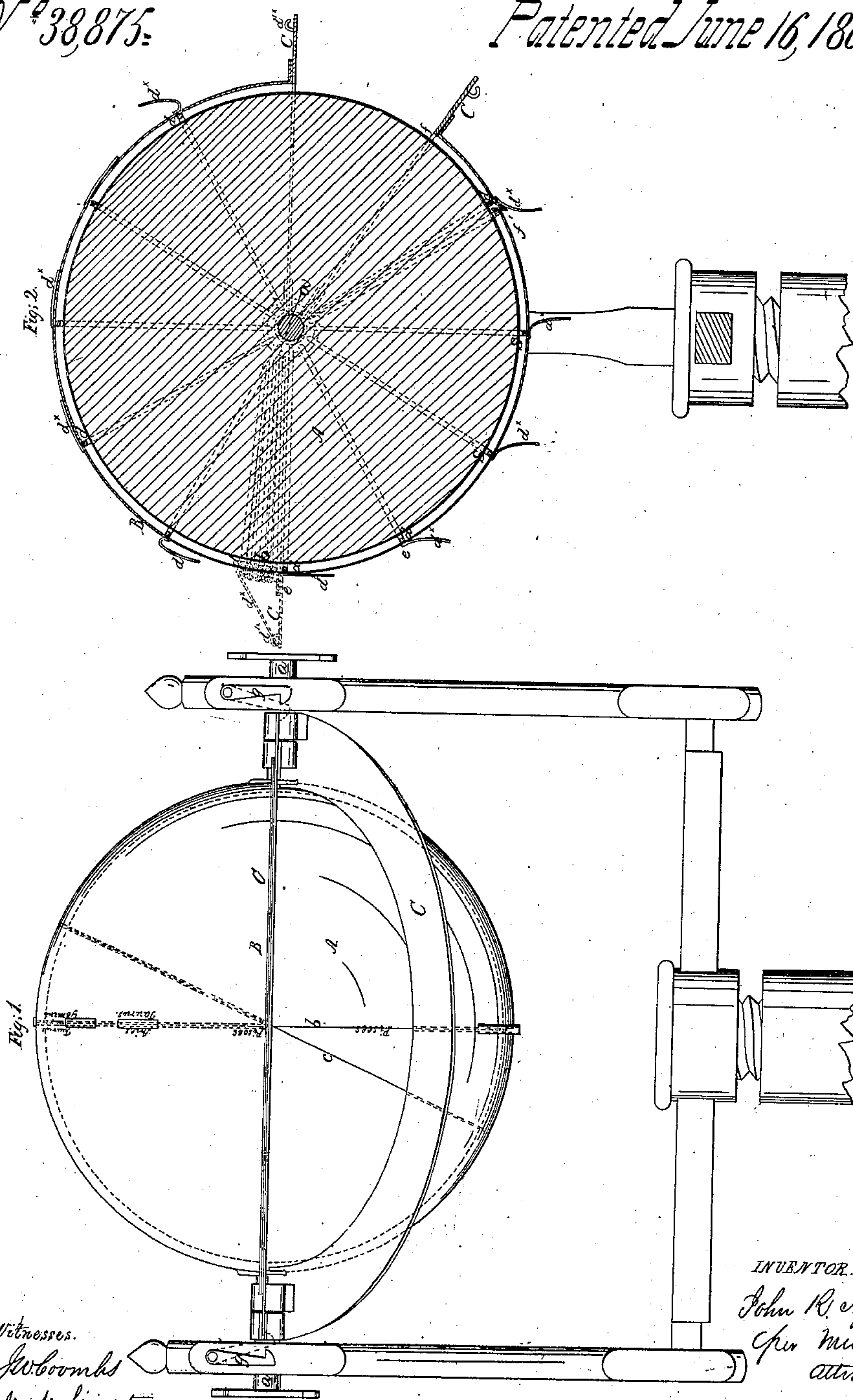


J. R. Agnew,

Geographical Globe.

N^o 38,875.

Patented June 16, 1863.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN R. AGNEW, OF MERCERSBURG, PENNSYLVANIA.

IMPROVEMENT IN SCHOOL-GLOBES.

Specification forming part of Letters Patent No. 38,875, dated June 16, 1863.

To all whom it may concern:

Be it known that I, JOHN R. AGNEW, of Mercersburg, in the county of Franklin and State of Pennsylvania, have invented a new and useful Improvement in School-Globes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a front elevation of my invention; Fig. 2 is a vertical central section of the same.

Similar letters of reference in both views indicate corresponding parts.

The object of this invention is to represent the periodical change taking place in the position of the earth in the universe, which is made apparent by the precession of the equinoxes, and also the apparent change of the position of the stars in relation to the earth, which is observed by the changes in the visible heavens from night to night, or from month to month.

The invention consists in the application to a celestial globe of a transparent case, having depicted on its surface the same lines and the same constellations which are depicted on the aforesaid celestial globe, and being connected to the same by means of pivots, inserted into the ecliptic poles of the inner globe, and passing through the ecliptic poles of the transparent case in such a manner that by moving said transparent case or the globe the recession of the ecliptic or the precession of the equinoxes, and consequently the true relation of the lines and points of a celestial globe toward each other and toward the observer on the earth can be illustrated.

It consists, further, in constructing said outer case of some flexible material and providing it with a certain number of hour circles or meridians, in such a manner that by adjusting said meridians the daily rising and setting of the stars can be illustrated.

To enable those skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A represents a celestial globe, suspended, by means of pivots *a*, from the poles of the ecliptic *b*. The equator *c* bisects the ecliptic at two points, which in the present time are situated in the constellations "Pisces" and "Virgo,"

but which some two thousand years ago were to be found in the constellations "Aries" and "Libra." These two points are the equinoctial points, and the gradual motion of these points from east to west is called the precession of the equinoxes or the recession of the ecliptic.

It is obvious that simultaneously with the precession of the equinoxes the poles of the equator, or those points in the heavens generally designated as the north and south pole, will describe circles around the poles of the ecliptic, or our north and south poles, instead of retaining their positions in the same constellations, will travel from one constellation to the other. In the present time our north pole coincides nearly with a star in the tail of "Ursa Minor," and this star is commonly called "north star," but from some five thousand years ago the star α , in the constellation "Draco" has been the "north star," and in about twelve thousand years from now the star "Vega" in the constellation "Lyra" will be the north star. These changes are illustrated by the application of the case B, which is made of some transparent material, and which surrounds the globe A, so that the same can either be rotated within the case or the case rotated around the globe. This case is marked with the same lines and with the same constellations as the globe, and it is connected to said globe so that the ecliptic of the case covers the ecliptic of the globe. By imparting to the case B a rotary motion around the globe, the equinoxes of the case pass through every point of the ecliptic on the globe, and the precession of the equinoxes can thus be illustrated. At the same time the north and south poles, marked on the case, describe circles around the ecliptic poles of the globe, and it can be observed at a glance which stars will be the north or south stars, and at what time. By moving the case it will be noticed that after about one-half of the great period the north pole will be in the neighborhood of the star Vega in Lyra. By these means the position of the equinoxes and of the north and south poles can always be corrected and properly illustrated. The case B serves also to determine the visible parts of the heavens from night to night, or the daily rising and setting of the stars. To accomplish this purpose the solid globe A is marked with the outlines of a

terrestrial globe, and the case B is put around it. The two halves of the large brass circle C are brought in such a position that the same are situated in one horizontal plane, in which position they are retained by dogs *g*, secured to the arms of the standard, and it is now assumed that the globe is suspended in the poles of the equator. The large brass circle C will represent the rational horizon of all persons living on the equator of the earth. One-half or more of the folds or ribs *d* are then fastened down by holes in the tapes *d'*, catching in the hook *d''*, and if the inner globe is taken off its pivots the folding case represents the sky above the observer at night. By unfastening one of the folds on the east side and drawing down a fold on the other, or west side, the rising or setting of the stars is represented. The rising of the fold on the east side with its stars represents their rising, and the folding of it down on the west side their setting. By

making the horizon adjustable the folding case can be adapted to different localities on the globe, but its operation will be essentially the same as above described.

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

1. The arrangement of the case B, in combination with a celestial or with a terrestrial globe, constructed and arranged substantially as and for the purpose herein shown and described.

2. The arrangement of the folds or ribs *d* in the flexible case B, in combination with the horizon C and globe A, constructed and operating substantially as and for the purpose specified.

JOHN R. AGNEW.

Witnesses:

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