

D. F. NICKOLS.  
TELLURIAN.  
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940,546.

Patented Nov. 16, 1909.

FIG. 1.

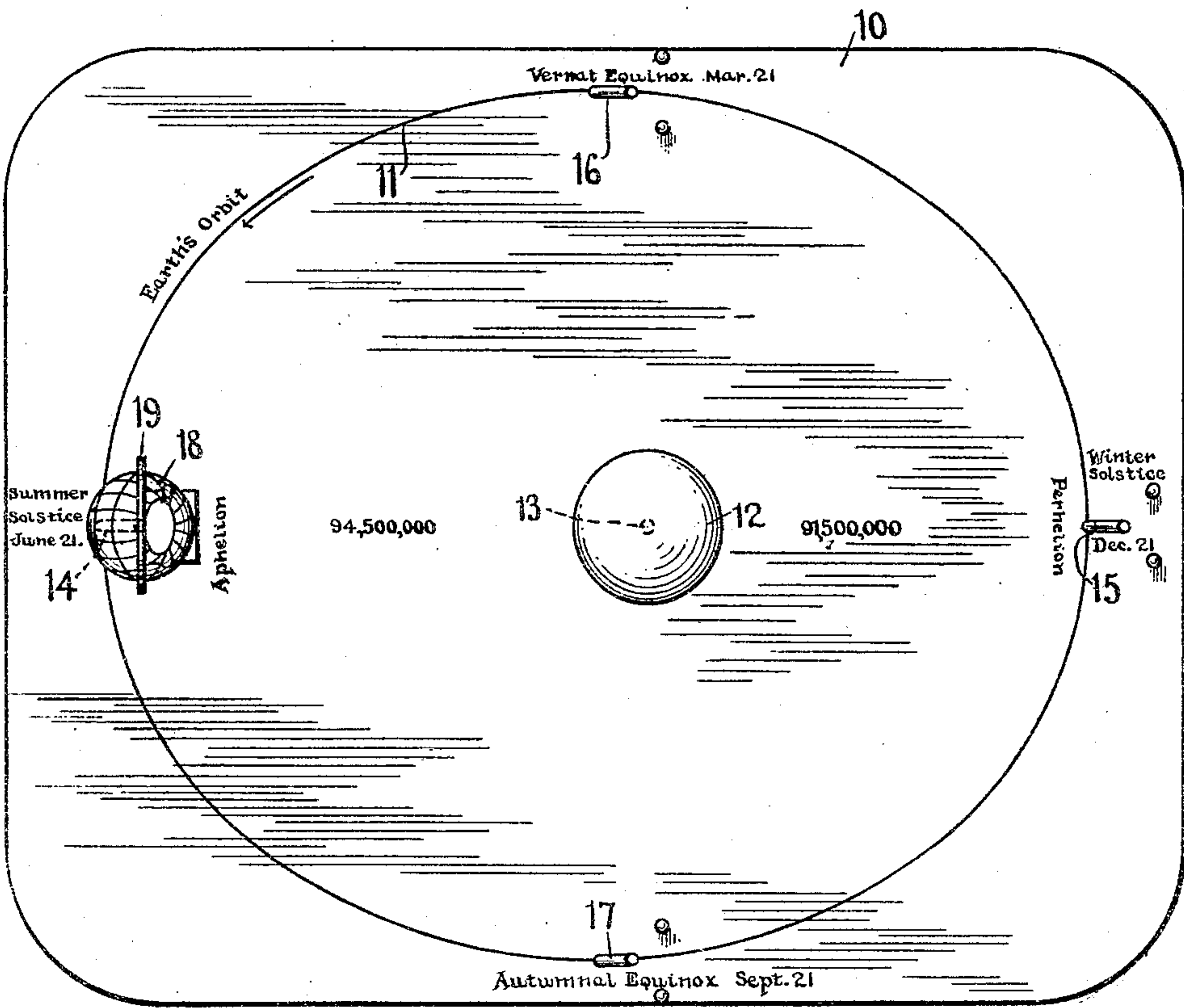


FIG. 2.

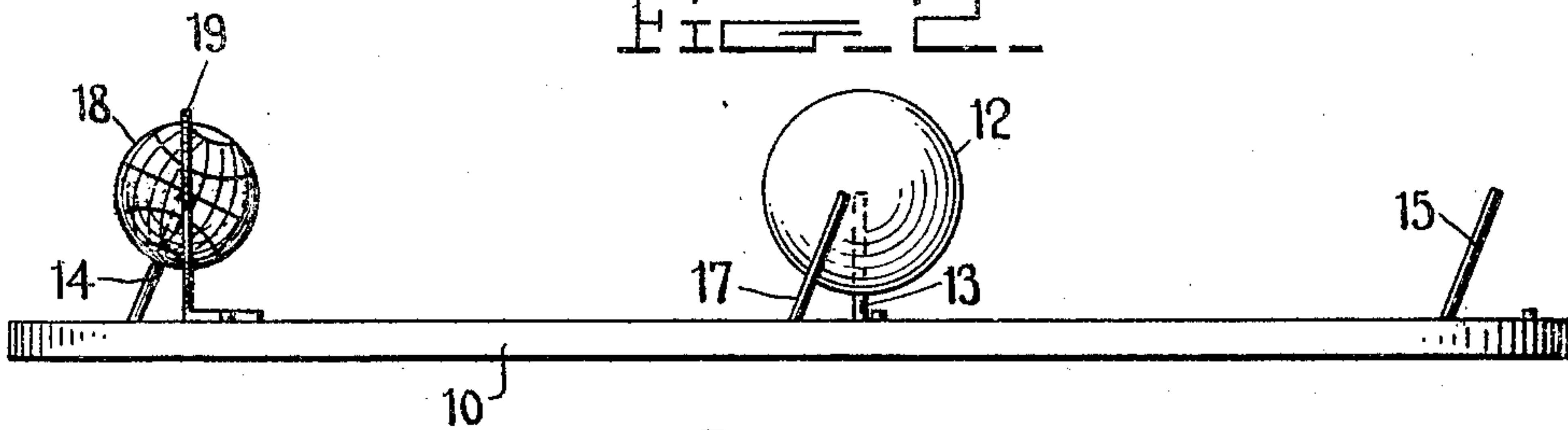
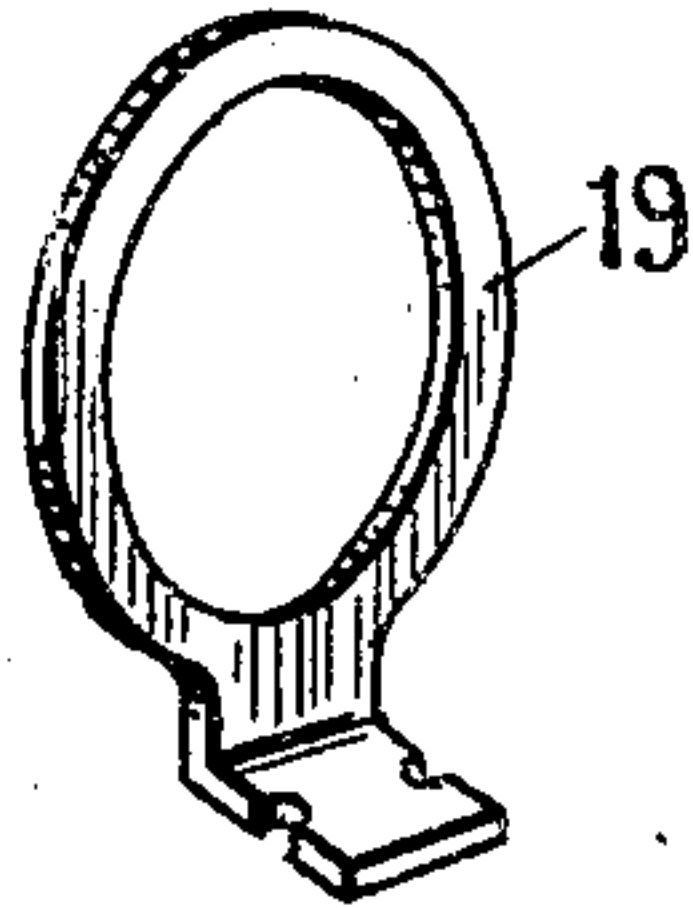


FIG. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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TELLURIAN.

940,546.

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*To all whom it may concern:*

Be it known that I, DANIEL F. NICKOLS, a citizen of the United States, residing at Lincoln, in the county of Logan, State of Illinois, have invented certain new and useful Improvements in Tellurians; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to educational devices designed to impart a knowledge of astronomy, more particularly to imparting knowledge of the movements of the earth relative to the sun, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a simply constructed device whereby the inclination of the earth's axis, the parallelism of the earth's axis and the revolution of the earth about the sun may be readily and graphically illustrated.

With these and other objects in view the invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claim, and in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a plan view of the improved device. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view, enlarged, of the "day circle" device.

The improved device is designed to illustrate the different positions of the earth relative to the sun at different periods of time throughout the year, and likewise to illustrate the "day circle" or the position of the illumined and darkened limbs or halves of the earth at different periods of time.

The improved device comprises a base or support 10, which may be of any required size and of any suitable material, and it is not desired therefore to limit the improved device to any particular size or to any particular material for this portion of the structure. The larger the base portion, the better for the pupil and the instructor.

Located upon the base 10 is an elliptical line 11 representing the orbit of the earth, and located within this orbit is a representation of the sun, the object employed for the

purpose of illustration represented by a ball 12, of any suitable material, and preferably detachably mounted upon a stud 13. The stud 13 is located at one side of the center of the longest axis of the ellipse, the shorter distance between the stud and the end of the orbital ellipse representing the distance between the earth and the sun at the winter solstice, which is approximately 91,500,000 miles, and the distance between the stud and the opposite end of the longer axis of the ellipse representing the distance of the sun from the earth at the summer solstice, which is approximately about 94,500,000 miles, and these numerals are preferably arranged upon the base within the ellipse, as shown.

Projecting from the base 10 approximately at opposite ends of the longer axis of the ellipse are studs 14—15, and likewise located near the ends of the shorter axis of the ellipse are similar studs 16—17, the studs 14—15—16—17 being inclined at an angle of about  $23\frac{1}{2}$  degrees to the perpendicular and parallel to the longitudinal plane of the greater axis of the ellipse, this inclination corresponding to the inclination of the earth, as is well known.

Adjacent to the stud 15 the words Perihelion, Winter solstice, December 21st are printed or otherwise placed, while the words Aphelion, Summer solstice, June 21st are printed or otherwise placed near the stud 14. The words Autumnal equinox, September 22nd are printed or otherwise placed adjacent to the stud 16, while the words Vernal equinox, March 21st are printed or otherwise placed adjacent to the stud 17.

A small globular figure 18 is employed to represent the earth and is preferably provided with the usual longitudinal and latitudinal lines and adapted to be detachably engaged with the inclined studs, to represent the location of the earth relative to the sun at different periods of its orbit. Thus when the globe 18 is located upon the stud 14 and rotated, the relative location of the earth to the sun on the 21st of June will be graphically shown. Then if the globe 18 be transferred to the stud 16 and rotated, the position of the earth relative to the sun on the 22nd of September will be likewise graphically illustrated, and the relative location of the earth to the sun on the 21st of December and the 21st of March may be



likewise graphically illustrated, by locating the globe 18 on the studs 15—17, as will be obvious.

To illustrate the "day circle" or the illuminated and darkened limbs or halves of the earth, a plate 19 is provided having a central aperture preferably corresponding to the diameter of the globe 18 and located upon the base 10 at right angles thereto, with the central aperture midway of the globe as shown. One of these plates 19 may be employed for each of the studs 14—16—15—17, or one of the plates only may be provided and arranged to be moved from place to place as required. Thus when the plate 19 is located relative to the globe upon the stud 14, the "day circle" will clearly and graphically illustrate the fact that the longest day is north of the equator and the shortest day south of the equator, and then by arranging the plate 19 adjacent to the stud 15 and transferring the globe 18 to the stud 15, the plate representing the "day circle" will illustrate the fact that the shortest day is north of the equator and the longest day south of the equator, which will occur on the 21st of December.

By locating the plate 19 adjacent to the studs 16 or 17 and placing the globe 18 upon either of these studs, the plate which represents the "day circle" will graphically illustrate the fact that the days and nights are equal when the earth reaches these points in its orbit, or on September 21st and March 21st, as will be obvious.

It will be understood that any required

number of the inclined studs may be employed upon the base at required points upon the orbital line 11, to denote the relation of the earth to the sun at any period of time during the year, but it is not considered necessary to show a greater number of the inclined studs.

The improved device is simple in construction, can be inexpensively manufactured, and employed in educational institutions of various kinds, as may be required.

What is claimed, is:—

A device of the class described comprising a base member having thereon an elliptical line representing the orbit of the earth, a plurality of studs projecting from said base member upon said orbital line and inclined substantially in the same plane as the longer axis of the earth, a representation of the sun located upon said base within said orbital line, a globular member representing the earth and adapted to be detachably arranged rotatively upon said inclined studs, spaced pins located upon said base adjacent to said inclined pins, and an annular member adapted to inclose the globular representation of the earth and with a lateral offset provided with perforations adapted to engage over said spaced pins.

In testimony whereof, I affix my signature, in presence of two witnesses.

DANIEL F. NICKOLS.

Witnesses:

CHARLES R. DEMMITT,  
MAX. W. GALLAGHER.