

913,074.

Patented Feb. 23, 1909.  
2 SHEETS—SHEET 1.

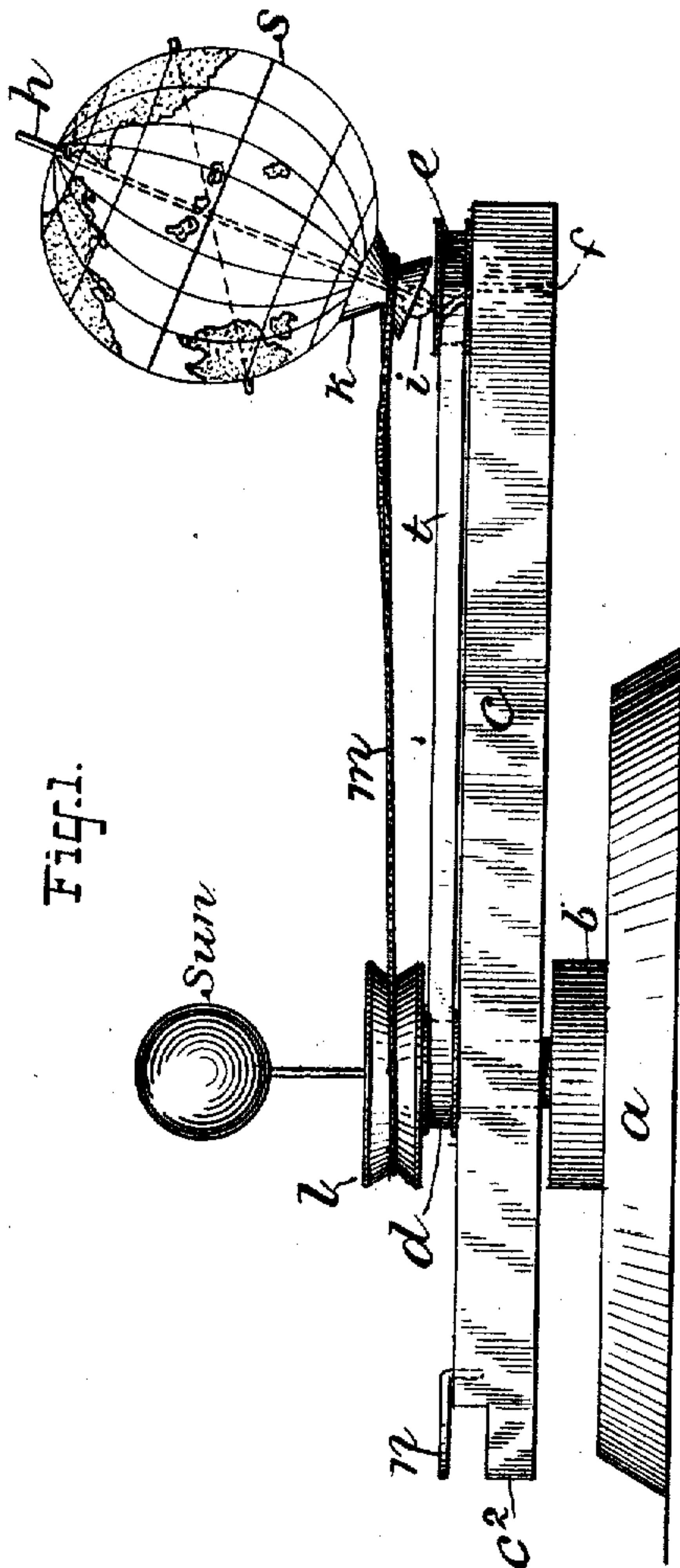


Fig. 1.

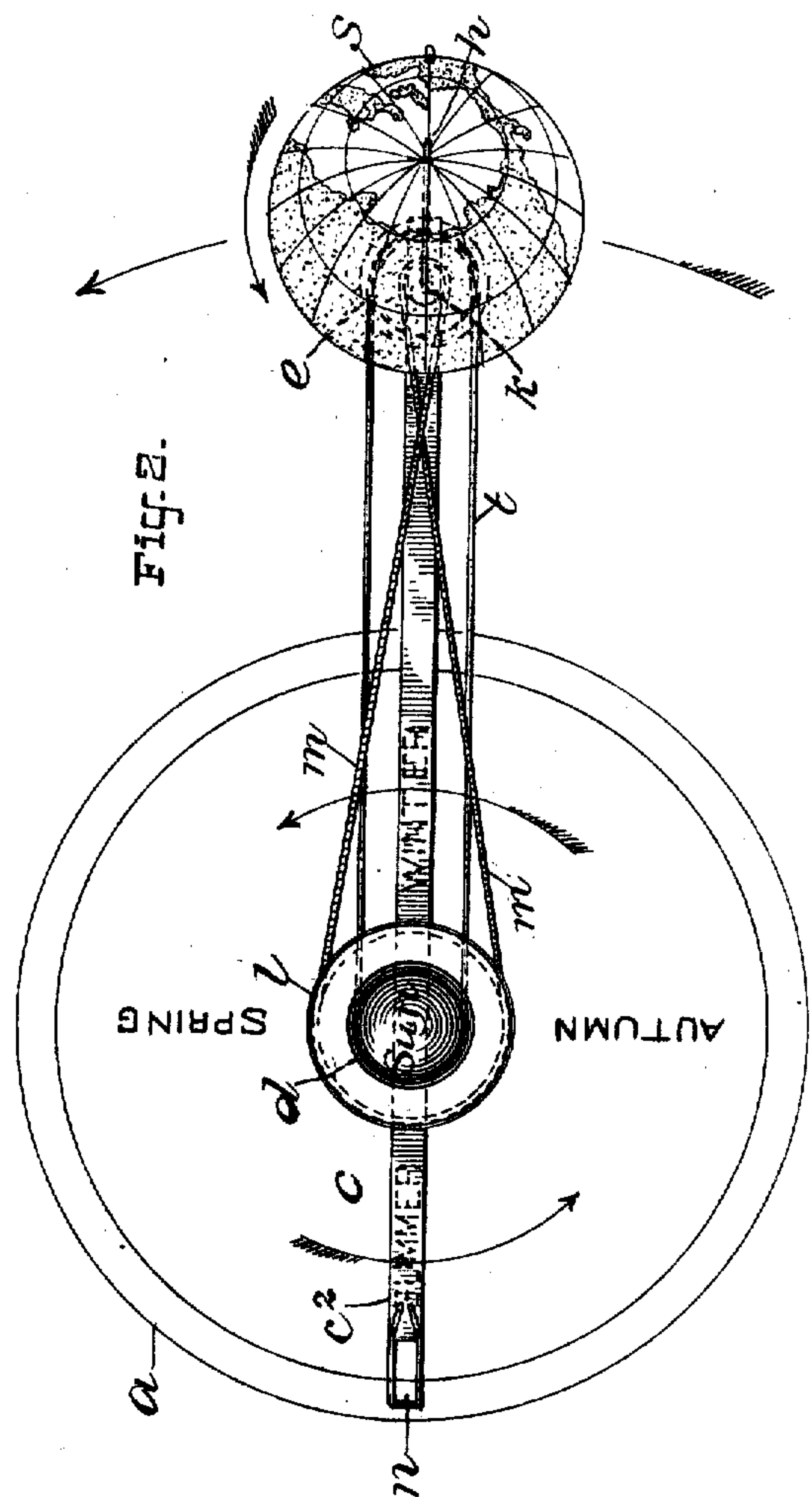


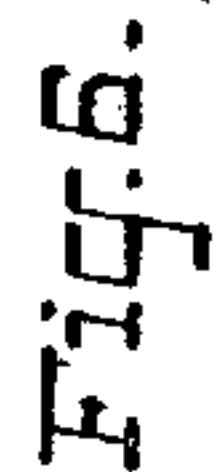
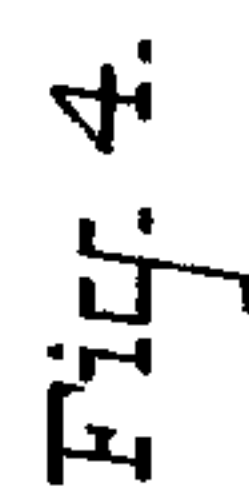
Fig. 2.

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## TELLURIAN.

No. 913,074.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed March 26, 1908. Serial No. 423,344.

*To all whom it may concern:*

Be it known that I, LEONIDAS H. VAN SYCKLE, a citizen of the United States, and a resident of Fort Lee, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Tellurians, of which the following is a specification.

The invention relates to a tellurian used to instruct children in the various natural phenomena of the solar system, such as the approximate movement of the earth as rotating on its own axis it revolves around the sun, thus causing day and night and the seasons; in the relative position of the planets to the earth and sun; and to illustrate the fixed inclination of the axis of the earth to the plane of the earth's orbit, the fixed general direction in which the axis points, and its relative positions to the sun during the earth's revolution.

The invention consists of a combination of mechanical contrivances which, when operated in unison, will impart simultaneously to a sphere representing the earth and mounted upon an inclined axis, a rotating movement around its own axis and a revolving movement around a predetermined fixed point representing the sun.

The invention further consists of mechanical means for keeping the outer edge of the inclined pulley at a constant distance from the axis of the non-rotatable driving pulley, thus maintaining an even tension in the driving flexible connection. All of which will be fully described and pointed out in the claims.

In the drawings Figure 1 is a side elevation of the invention representing in its entirety a tellurian. Fig. 2 is a plan of Fig. 1. Fig. 3 is also a side elevation of the tellurian in which is shown the manner of illustrating the relative positions of the celestial bodies forming the dipper to the earth in its various stages of rotation and revolution; it likewise illustrates the positions of other planets as well. Fig. 4 is a cross section of the rotatable base showing the manner in which the angular arm is mounted upon it. Fig. 5 is a detached plan of the rotatable base or disk in which is shown the groove adapted to receive the angular arm from which extends the inclined axis. Fig. 6 is a diagram of the main mechanical feature of my invention. Here is shown the center of the inclined pulley lying on the prolongation of the axis of the rotatable base, thus maintaining at all times

a fixed distance between the axis of the non-rotatable pulley and the outer and driven edge of the inclined pulley, and maintaining a constant and equal tension upon the driving flexible connection and producing a smooth and even rotation of the sphere representing the earth.

Similar letters refer to similar parts throughout the drawings in which the base *a*. may be made in any shape and of any material desired, and is provided with a vertically projecting stud *b*. centrally located thereon. Upon the stud *b*. is loosely mounted a radial swinging arm *c*. having mounted concentrically with its axis a non-rotatable circular disk *d*.; the longer extension of the said radial swinging arm *c*. is provided, near its outer extremity, with the rotatable base or disk *e*. driven from the fixed circular disk *d*. by means of a flexible connection. The disk *d*. and the base *e*. are equal in diameter so that the base *e*. will make one complete revolution for each complete revolution of the swinging arm *c*.; thus the successive positions assumed by the inclined axis of the globe representing the earth will be parallel. The rotatable base or disk *e*. is provided with the centrally located vertical perforation *f*. the latter terminating into an angular groove *g*. and adapted to receive the correspondingly shaped extension of the inclined axis *h*. representing the axis of the earth, thus preventing the latter from rotating in the base *e*. and causing the motion of the axis *h*. to coincide with that of the base. There is mounted upon the inclined axis *h*. and above the rotatable base or disk *e*. the spherical body *i*. the latter adapted to engage with the correspondingly shaped concavity located on the base of the pulley *k*. which is rigidly secured to the sphere *s*. the whole of which is mounted loosely upon the inclined axis *h*. The said pulley *k*. is connected with the non-rotatable pulley *l*. mounted concentrically with the axis of the arm *c*. by means of the crossed flexible connection *m*. The distance between the non-rotatable pulley *l*. and the pulley *k*. is kept constant by reason of the center of the pulley *k*. coinciding with the prolongation of the axis of the rotatable base *e*. thus maintaining at all times the same distance between the driving edges of the non-rotatable pulley and the inclined pulley and keeping the tension of the flexible connection constant. The shorter or rearward portion *c*<sup>2</sup> of the radial



swinging arm *c.* is provided with a loop or hole *n.* which is used by the instructor to insert his pencil or wand when desirous of operating the device.

5 It will be obvious that the wire *o.* representing the dipper and polar star is rigidly secured to the upper extension of the inclined axis *h.* and revolves with it, as shown in Fig. 3. The wire *p.* shown in the drawing, 10 Fig. 3, supporting the sphere representing the moon, is wound around the inclined axis *h.* loosely but its free end is secured to the sphere *s.* thus moving with it; but the construction shown is not intended to show the 15 degree of movement of the moon but to show its relative position to the earth. The upper surface of the base *a.* is divided into four equal parts representing the four seasons of the year. The longer portion of the 20 radial swinging arm *c.* lies directly over the section or division marked winter which indicates the starting point from which the radial swinging arm travels in the direction indicated by the arrow towards the spring 25 and so on until winter is again reached when the earth shall have made one complete revolution around the sun.

Mode of operation: When the instructor desires to instruct his pupils in the relative 30 position of the earth to the sun, its manner of rotating about its own axis while revolving around the sun; the relative position of the inclined axis of the earth to the sun at different seasons of the year, the location of 35 the different antipodes, and various other natural phenomena of the solar system, he will first place his pencil or wand in the loop *n.* and move the radial swinging arm *c.* in the direction indicated by the arrow, thus by 40 means of the flexible connections *t.* and *m.* respectively imparting a rotary movement to the rotatable base or disk *e.* and the pulley *k.* the former carrying the inclined axis *h.* and its attachment while the latter carries the 45 sphere representing the earth and its attachments. It will be obvious that all moving parts working in unison will impart simul-

aneously movements to the sphere *s.* and the inclined axis *h.* thus illustrating the rotating and revolving movements of the 50 earth around the sun, and the different positions of the inclined axis with regard to the sun, and at the same time maintaining the parallelism of the axis at all stages of revolution. It will also illustrate the exact 55 location of any antipodes the instructor may wish to point out.

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

1. In a tellurian, the combination, consisting of a rotatable base, an inclined axis 60 mounted thereon, a pulley mounted upon the aforesaid axis the center of the pulley lying in the prolongation of the axis of the 65 rotatable base, and a globe fixedly connected to the pulley and mounted upon the inclined axis.

2. In a tellurian, the combination, consisting of a fixed base, a swinging arm 70 mounted upon the fixed base, two non-rotatable pulleys and a ball representing the sun mounted upon the axis of the arm, a rotatable base journaled upon one end of the 75 aforesaid arm, a flexible connection driving the rotatable base from the lower of the two non-rotatable pulleys, an inclined axis 80 mounted upon the rotatable base, a pulley mounted upon the inclined axis the center of the pulley lying in the prolongation of the 85 axis of the rotatable base, a crossed flexible connection driving the inclined pulley from the upper of the two non-rotatable pulleys, and a globe representing the earth fixedly connected to the inclined pulley and mounted 85 upon the inclined axis.

Signed at Manhattan borough, New York city in the county of New York and State of New York this 21st day of March A. D. 1908.

LEONIDAS H. VAN SYCKLE.

Witnesses:

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