

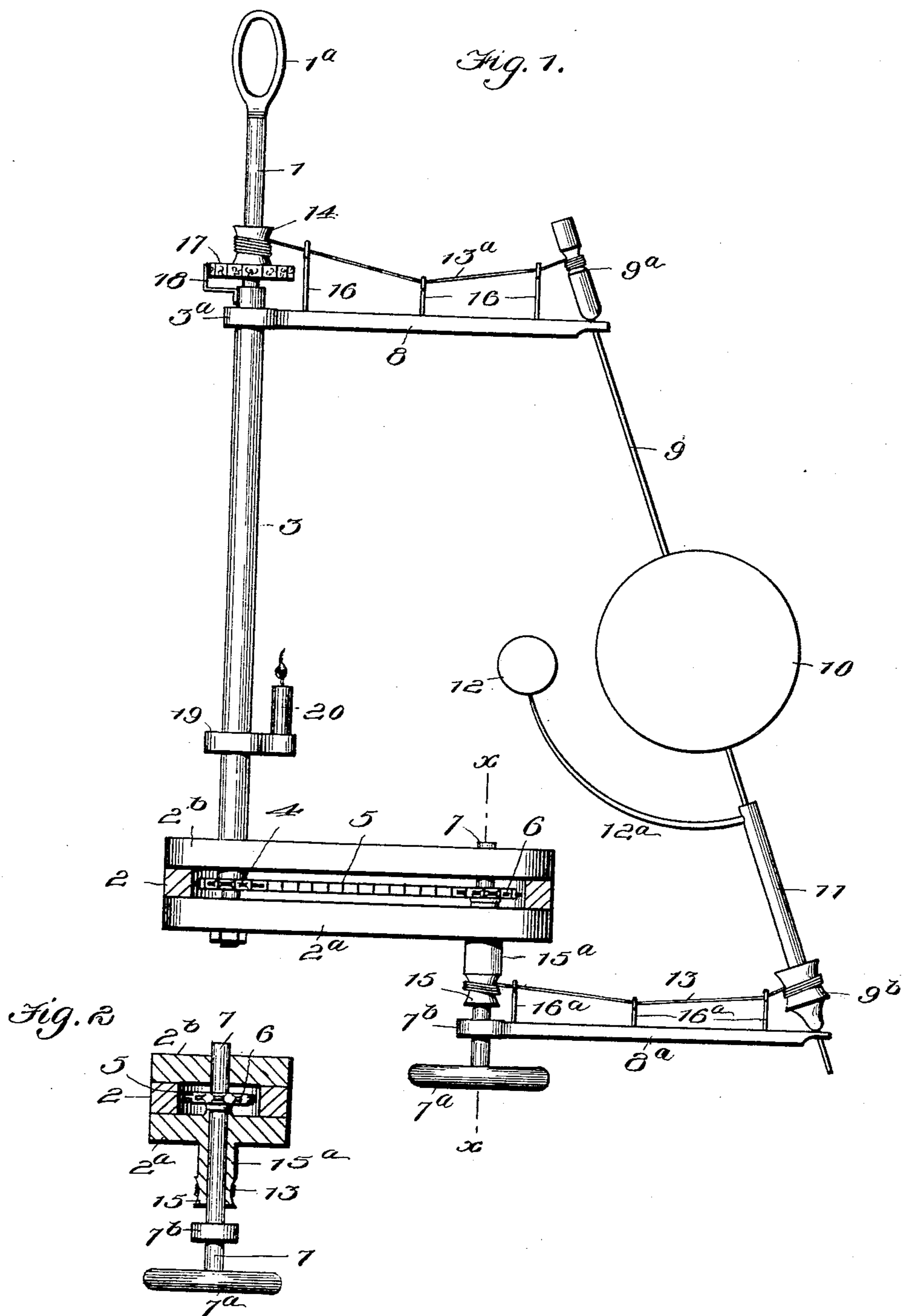
No. 704,350.

J. A. B. LOVETT.
TELLURIAN.

Patented July 8, 1902.

(No Model.)

(Application filed Oct. 3, 1901.)



Witnesses

Colman R. H. Fowles, Jr.
Charles F. Hatch.

by: James A. B. Lovett
Edson Br. J.
Attorneys

UNITED STATES PATENT OFFICE.

JAMES A. B. LOVETT, OF BLOUNTSVILLE, ALABAMA.

TELLURIAN.

SPECIFICATION forming part of Letters Patent No. 704,350, dated July 8, 1902.

Application filed October 3, 1901. Serial No. 77,461. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. B. LOVETT, a citizen of the United States, residing at Blountsville, in the county of Blount and State of Alabama, 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.

My invention relates to improvements in tellurians or apparatus for instruction especially in schools, involving certain astronomical facts based principally upon the annual and diurnal motions of the earth or its axial and orbital movements. It provides for readily illustrating or demonstrating mechanically the theory of the causes and changes of the seasons and of the occurrence and recurrence of day and night, the changes or different phases of the moon, and of the causes of the eclipses of the sun and moon, as well as to illustrate the respective zodiacs of the months of the year.

It consists of the combination, construction, and arrangements of parts, substantially as hereinafter more fully disclosed, and particularly pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a broken side elevation thereof, parts also being in section. Fig. 2 is a sectional view on the line $x x$ of Fig. 1.

Latitude is allowed herein as to details, as they may be varied without departing from the spirit of my invention and the same yet remain intact and be protected.

In carrying out my invention I provide a vertical rod or spindle 1, suitably fixed or nutted to a base 2, said rod having preferably an upper curved or handled end, as at 1^a, for the convenient handling or suspending of the instrument in conducting instructions before a class in a school. Said rod or spindle has slipped thereon a tubular or hollow shaft 3, whose lower end entering said base has fixed thereon a sprocket wheel or pinion 4, belted, preferably, by a chain belt 5 to a corresponding wheel or pinion 6, secured to a shaft 7, also journaled in said base or support. Said base or support in practice being preferably wood is chambered or excavated

to receive the chain belt and sprocket-pinions above described, and upon the bottom of its chamber or excavation is placed a plate 2^a to suitably support or pivot the shafts 3 and 7 from, preferably as shown in Fig. 2. Said excavation or chamber may be closed from the upper side preferably by an additional plate or closure 2^b set onto the support and suitably secured in place, as also shown in the drawings. Said shaft 7 has fixed to one end a hand-wheel 7^a for readily imparting motion thereto by the engagement of the hand with said wheel.

To the shafts 3 and 7 are secured by collars 3^a 7^b, suitably fixed thereto, arms 8 8^a, one being arranged near the upper end of the shaft 3 and the other near the lower end of the shaft 7. Said arms are so arranged that an axis or shaft 9, supported in their free ends, said ends being provided with openings through which said axis passes, occupies an angle of twenty-three and a half degrees (23½°) to the vertical corresponding to the earth's axis, a globe 10, representing the earth, being fixed to said axis or shaft.

Sleeved upon the shaft or axis 9, below the globe 10, is a tubular or hollow shaft 11, having fixed thereto, preferably near its upper end, a preferably arcual or curved arm 12^a, carrying a globe 12, representing the moon, the same standing a short distance from the earth-globe 10 about in a horizontal line passing through the horizontal center of said earth-globe. Upon the upper end portion of the shaft or axis 9 is fixed a pulley 9^a, and upon the shaft or sleeve 11, at its lower end, is a fixed pulley 9^b, and connected to and partially passed or wound around said pulleys, respectively, are lines or cords 13^a 13, the cord 13^a being connected to a fixed pulley 14 on the stationary shaft 1 and the line or cord 13 being connected to a fixed pulley 15, secured to a sleeve 15^a, arranged concentrically with the shaft 7 and fixed to and depending from the support or base 2. Suitable eye-ended rods or guides 16 16^a are secured upon the arms 8 8^a for the proper alinement or guidance of the lines or cords 13^a 13 immediately of the pulleys 9^a 14 and 9^b 15, respectively, and to hold said cords under proper tension. Also fixed upon the stationary shaft or rod 1, preferably just below the

lower end or head of the pulley 14, is a disk or plate 17, bearing the twelve zodiacal signs upon its edge or periphery, and 18 is a pointer or finger secured to and carried by the rotary shaft 3, with its upper end standing just opposite and closely to said zodiacal disk. Also carried by the shaft 3 is a suitable support or means 19, bearing an illuminant 20, relatively arranged to the earth and moon globes, and which may represent the sun throwing its rays or light thereon.

In the operation the instrument is suspended from the hand or ceiling and the operator applies one hand to the hand-wheel 7^a, rotating the shaft 7, imparting motion through the chain belt 5 and pinions 4 6 to the shaft 3, carrying with it the illuminant 20. The motion of the shafts 3 7 carries around arms 8 8^a and with them the earth-globe-carrying shaft or axis 9, thus effecting the annual or orbital motion of the earth, producing the changes of the season. Simultaneously the lines or cords 13 13^a will be unwound from the pulleys 9^b 9^a and to the same extent be wound or coiled upon the pulleys 15 14. The unwinding of the cord or line 13^a imparts the axial or diurnal motion to the earth-globe through the shaft 9. The unwinding of the line 13 turns or actuates the pulley 9^b, accordingly turning the shaft 11, carrying the moon-globe-bearing arm 12^a, thus demonstrating the different phases of the moon, together with the eclipses of the sun and moon, the illuminant or sun 20 throwing its rays or light toward the earth-globe and upon different portions thereof during different stages of its diurnal rotation and the movement in the plane of its orbit, as well as toward the moon-globe, during different presentations of its surface thereto. Also simultaneously the shaft 3 carries the pointer or index-finger 18 around the disk 17, representing the monthly zodiacs.

It will be observed that by varying the diameters or sizes of the several pulleys above referred to the movements of the globes may be accordingly varied. It is also obvious that in lieu of the belt or chain 5, above described, a train of intergearing cog wheels or pinions may be employed, which would amount simply to filling in the space between the pinions 4 and 6 with duplicate pinions.

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

55 1. The combination of a stationary spindle or rod, a hollow or tubular shaft thereon carrying an illuminant, a second shaft geared to the former shaft, arms secured to said shafts, means stretched from the free ends of said arms for carrying a globe or sphere at an angle corresponding to that of the axis of the earth, and means for actuating said shafts and arms, substantially as set forth.

65 2. The combination of a spindle or rod, a hollow shaft thereon carrying an illuminator, a second shaft geared to the former shaft, arms fixed to said shafts, and a wire or rod

extending from the free ends of said arms at an angle corresponding to the earth's axis, and a sphere or globe centrally secured to said wire or rod, substantially as described. 70

3. The combination of a spindle or rod, a hollow shaft thereon carrying an illuminator, a second shaft, arms fixed to said shafts, and a wire or rod extending from the free ends of said arms at an angle corresponding to the earth's axis, and a sphere or globe centrally secured to said wire or rod, said shafts having pinions belted together, substantially as described. 75 80

4. The combination of a stationary spindle or rod, a rotary shaft concentric to said rod and carrying an illuminant, a second shaft geared to the first-referred-to shaft, arms fixed to said shafts, a shaft or axis having a corresponding angle to that of the earth's axis and bearing a globe representing the earth and journaled in or carried by said arms, and means for imparting an axial motion to the shaft or axis bearing the earth-globe, substantially as described. 85 90

5. The combination of a stationary spindle, a rotary shaft concentric to said spindle and carrying an illuminant, a second shaft geared to the first-referred-to shaft, arms fixed to said shafts, a shaft or axis having a corresponding angle to that of the earth's axis bearing a globe representative of the earth and carried by said arms, and pulleys belted together and fixed to said spindle and the earth-globe-bearing axis or shaft, substantially as described. 95 100

6. The combination of a stationary spindle or rod, a rotary shaft concentric to said spindle and carrying an illuminant, a second shaft geared to the aforesaid shaft, arms carried by said shafts, a globe-bearing shaft or axis carried by said arms and arranged at an angle corresponding to the earth's axis, means for imparting an axial motion to said globe-bearing shaft, a shaft concentric to said globe-bearing shaft and, itself, carrying a globe representative of the earth's satellite, and means for actuating said last-referred-to shaft, substantially as described. 105 110 115

7. The combination of a stationary spindle or rod, a shaft concentric to said spindle and carrying an illuminant, a second shaft geared to the aforesaid shaft, a globe-bearing shaft or axis arranged at an angle corresponding to that of the earth's axis and a shaft bearing a second globe representative of the earth's satellite and having a pulley belted to a fixed pulley arranged concentrically with said second shaft, substantially as described. 120 125

8. The combination of a stationary spindle or rod having a fixed pulley or spool, a rotary shaft concentric to said spindle and bearing an illuminant, a second shaft geared to the aforesaid shaft, arms fixed to said shafts, a pulley having its support arranged concentric to said second shaft, a globe-bearing shaft or axis carried by said arms arranged at an angle corresponding to that of the 130

earth's axis and having a fixed pulley or spool, a cord or line wound or coiled around the pulley or spool of said globe-bearing shaft and connected to the pulley or spool of said stationary spindle, a second globe-bearing shaft arranged concentric to the aforesaid globe-bearing shaft, and a line or cord coiled around the pulley or spool of second globe-bearing shaft and connected to the pulley or spool arranged concentrically to said second shaft, substantially as described.

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

JAMES A. B. LOVETT.

Witnesses:

J. D. SMALL,

G. W. SMALL.