H. L. BRETSCH.

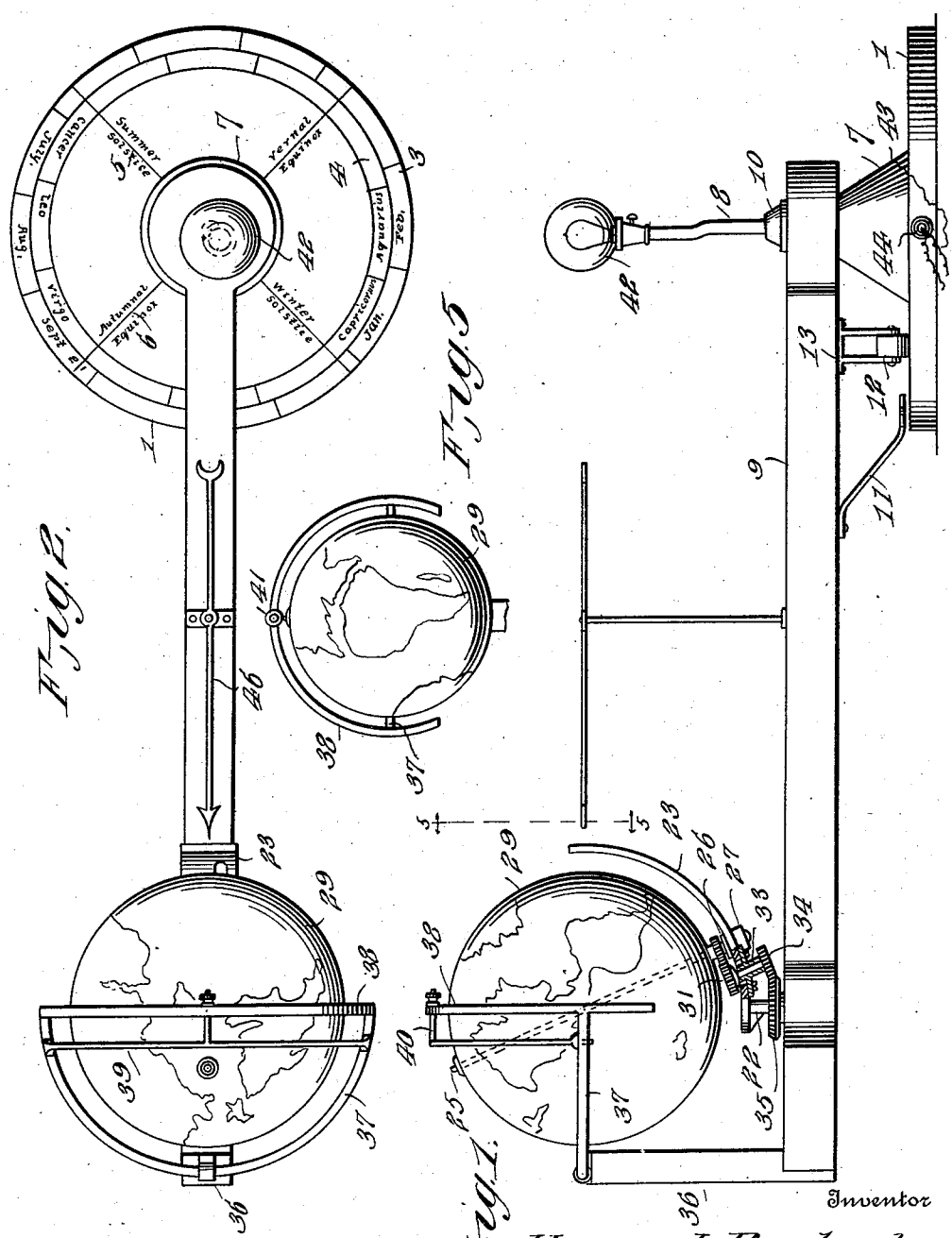
TELLURIAN.

APPLICATION FILED MAY 23, 1911.

1,010,226.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 1.



Witnesses

Frank Hough

E. Edwards

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

H. L. BRETSCH.

TELLURIAN.

APPLICATION FILED MAY 23, 1911.

1,010,226.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 2.

Fig. 4.

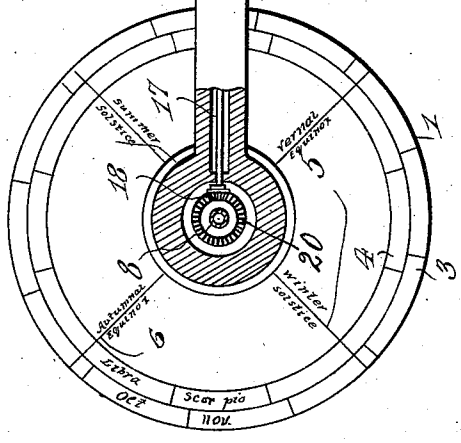


Fig. 6.

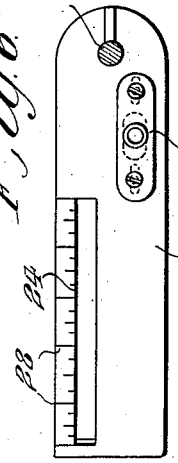
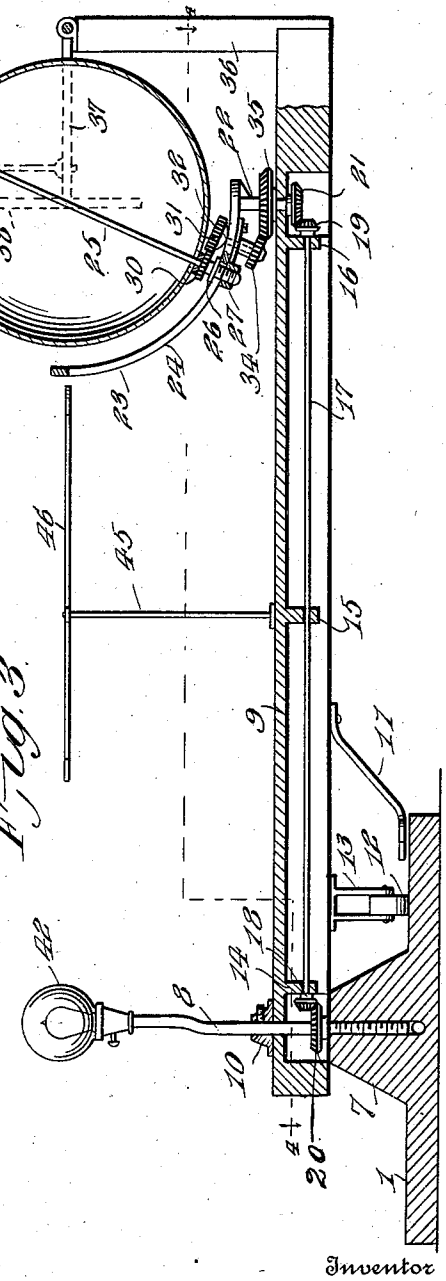


Fig. 3.



Inventor

Homer L. Bretsch,

By Victor J. Evans

Attorney

Witnesses

Frank Hough

E. Edwardson

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HOMER L. BRETSCH, OF HASTINGS UPON HUDSON, NEW YORK.

TELLURIAN.

1,010,226. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed May 23, 1911. Serial No. 629,031.

To all whom it may concern:

Be it known that I, HOMER L. BRETSCH, a citizen of the United States, residing at Hastings upon Hudson, in the county of Westchester and State of New York, have invented new and useful Improvements in Tellurians, of which the following is a specification.

This invention relates to tellurians and one of the principal objects of the invention is to construct a simple and efficient device of this character whereby the following important facts may be conclusively determined: the part of the earth's surface illuminated by the sun at any one time, also the part which is in shadow; the position of the twilight belt; the motions of the earth; rotation and revolution; the inclination and parallelism of the earth's axis; the succession of day and night; the variations of length of day and night at different seasons and in different latitudes; the cause of the midnight sun; the reason for equal day and equal night at the equator at all times; and the reason for the peculiar seasons of the poles; the position of the vertical rays of the sun at any day of the year; the fact that the location of the four climatic circles is determined by the amount of inclination of the earth's axis; the determining causes of the widths of the zones; and the unequal distribution of heat and hence climatic variations.

A further object of the invention is to so mount a globe that the inclination of the earth's axis may be changed, and a still further object is to provide means whereby the device will indicate the earth passing through the summer and winter solstices and the autumnal and vernal equinoxes.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawings, which form a part of this application, and in which:—

Figure 1 is a side elevation. Fig. 2 is a top plan view. Fig. 3 is a vertical longitudinal section. Fig. 4 is a horizontal section on the line 4—4 of Fig. 3. Fig. 5 is a detail vertical sectional view on the line 5—5 of Fig. 1. Fig. 6 is a bottom plan view of the axis quadrant.

Referring more particularly to the drawings, 1 represents a base having any suitable outline, but preferably circular in form. On the upper surface of the base, adjacent the periphery thereof, is spaced suitable indicia 3 and 4 indicating the months of the year and the signs of the zodiac and also lines 5 and 6 indicating the time in which the earth passes through the solstices and equinoxes, the months of the year being arranged anti-clockwise. The center of the base is provided with the frustum of a cone 7 through which and through the base extends a shaft 8 upon which is journaled a globe supporting arm 9, the same being held down upon the cone by a conical washer 10 secured to the shaft. The arm is provided with a pointer 11 adapted to operate over the face of the base. The free end of the arm is supported by means of a roller 12 operating over the base and carried by a bracket 13 secured to the underside of the arm. The arm 9 is preferably hollow and has secured therein the bearing members 14, 15 and 16 in which is journaled a transmission shaft 17 having pinions 18 and 19 secured upon opposite ends thereof. The pinion 18 is in mesh with a bevel gear 20 secured to the top of the cone and the pinion 19 is in mesh with a similar bevel gear 21 mounted upon a shaft 22 extending vertically from the arm and carrying, upon its upper end, an axis quadrant 23. This quadrant is provided with a longitudinal slot 24 in which the axle 25 is adjustably secured, said axle having a collar 26 which seats upon the top of the quadrant and its outer end threaded to receive the locking nut 27 which secures the axle in adjusted position in the quadrant. The quadrant is also graduated, as shown at 28, to determine the angle of the axle.

Journaled upon the axle is an ordinary globe 29 representing the earth and having the different zones marked thereon. Surrounding the axle 25 and secured to the underneath side of the globe is a gear 30 which is in mesh with a gear 31 carried upon a transmission shaft 32 mounted in a plate 33 adjustably carried by the quadrant. The lower end of the shaft is provided with a bevel gear 34 which is in mesh with a similar but larger gear 35 held stationary upon the arm surrounding the shaft 22. Thus it will be noticed that as the arm 9 is rotated upon the shaft 8 the pinion 18 will be rotated by engagement with the gear 20 and thus through the pinion 19 and gear 21 the

shaft 22 will be rotated. Thus, as the arm is rotated, the earth will be revolved with the quadrant, and the gear 34, being in mesh with the gear 35 which is stationary upon the arm, the earth will be rotated upon its axis.

In order that the circle of illumination and the twilight belt may be clearly shown upon the globe during all periods and at all places, there is secured to the arm a standard 36 from which projects a horizontal yoke member 37 surrounding one-half of the globe and having secured to its outer ends a substantially semi-circular bar 38 which is of sufficient size to permit the passage of the globe in all its positions. Spaced away from the bar 38 is a similar bar 39 which has its ends stepped in the supporting member 37 and is connected to the bar 38 by a bridge piece 40 which has its outer end threaded and passed through the member 38 and provided with a thumb nut 41, so that the member 39 is spaced away from the member 38 a distance corresponding to 18° upon the globe which is the width of the twilight belt.

Mounted upon the end of the shaft 8, which is hollow, is an electric globe 42 having a connection with a source of supply by wires 43 which extend through the shaft and a pipe 44 is also connected to the shaft, so that the sun may be represented by a gas globe instead of an electric incandescent light.

In order that the position of the vertical rays may be indicated upon the globe a standard 45 is secured to the arm intermediate its length and mounted upon the upper end of the standard is a thin arm 46 which is in line with the sun and with the 90° mark on the quadrant or with the intermediate point between the poles. By rotating the arm anti-clockwise over the base the before-mentioned results may be readily determined.

Having thus described the invention, what I claim as new is:—

1. In a device of the class described, the combination with a base, of an arm rotatably mounted thereon, a quadrant, means actuated in the rotation of the arm for rotating the quadrant, a shaft adjustably mounted in the quadrant, and a globe rotatably mounted upon the shaft.

2. In a device of the class described, a base, an arm rotatably mounted thereon, a shaft extending therethrough, a gear surrounding the shaft and keyed to the base, a gear rotatably mounted in the arm, an operating connection between the gear on the base and the last-named gear, a quadrant secured to the last-named gear and having a slot therein, a shaft adjustably mounted in the slot, a globe rotatably mounted upon the shaft, and a driving connection for the globe.

3. In a device of the class described, a base, an arm rotatably mounted thereon, a shaft extending therethrough, a gear surrounding the shaft and keyed to the base, a gear rotatably mounted in the arm, an operating connection between the gear on the base and the last-named gear, a quadrant secured to the last-named gear and having a slot therein, a shaft adjustably mounted in the slot, a globe rotatably mounted upon the shaft, a gear secured to the arm, a gear secured to the globe, and a connection adjustably mounted upon the quadrant and extending between said last-named gears.

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

HOMER L. BRETSCH.

Witnesses:

CLARENCE D. HANFORD,

EDWIN F. BALDWIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."