Feb. 26, 1924. 1,485,322

S. A. WINETZKY

TELLURIAN

Filed Aug. 29, 1921 2 Sheets-Sheet 1

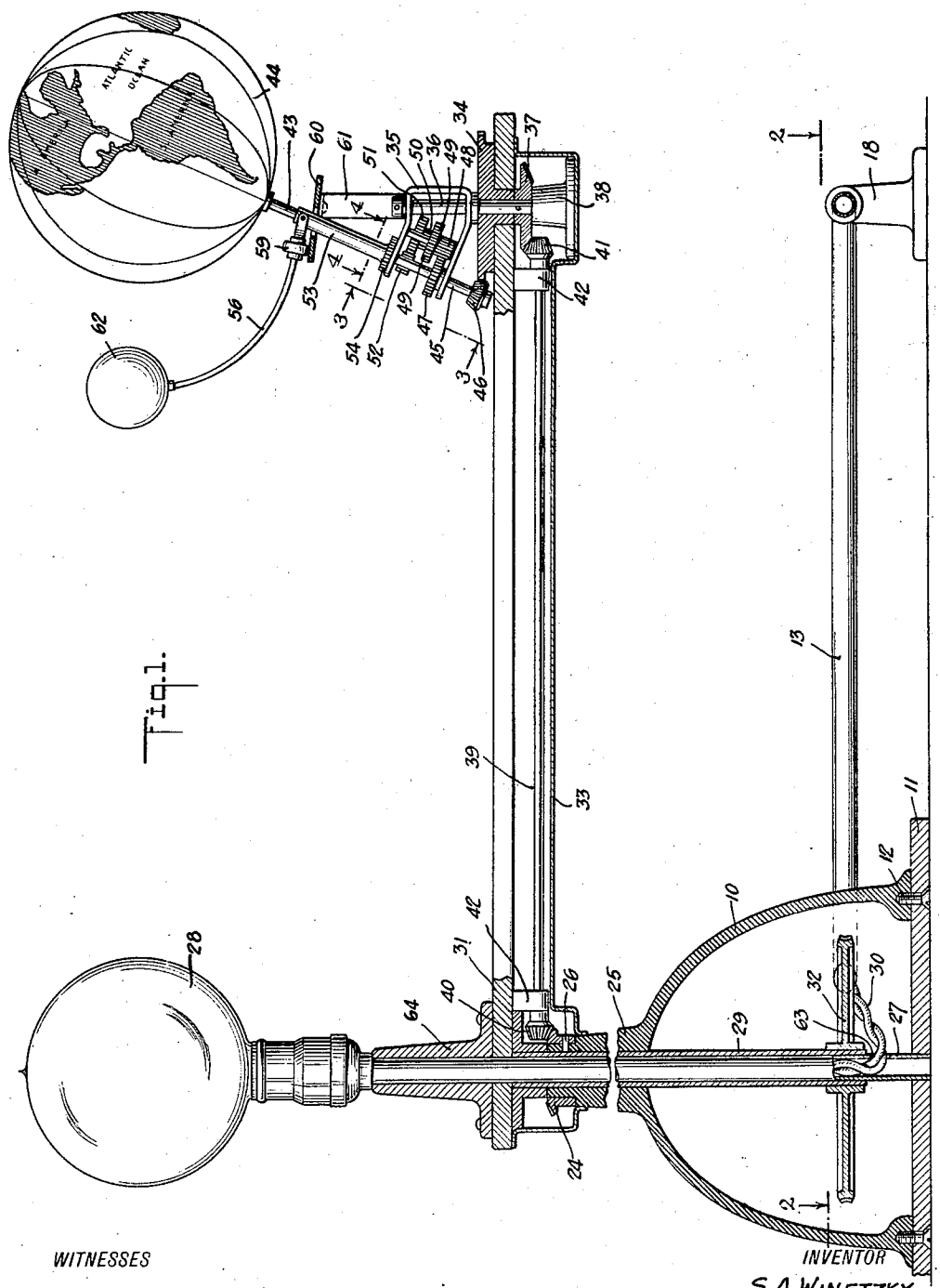


Fig.1.

WITNESSES

Frederick Diehl.

E. W. Savage

INVENTOR

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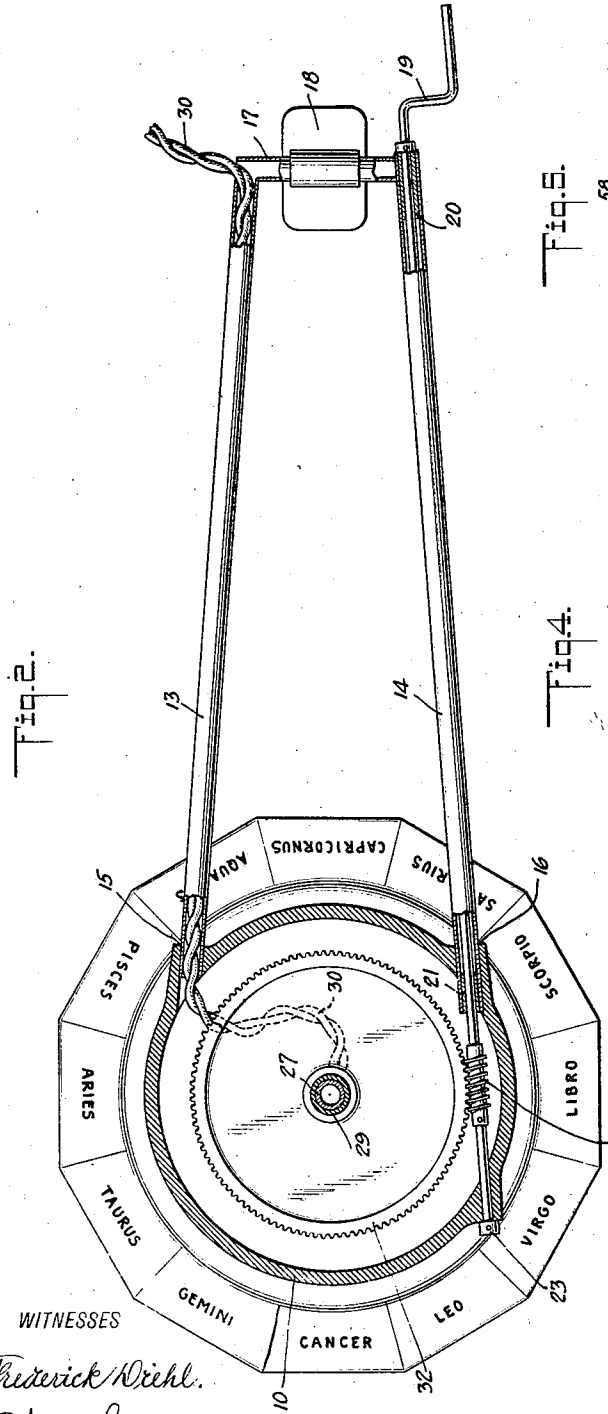


Fig. 2.

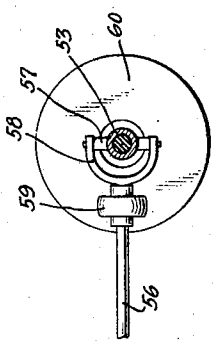


Fig. 5.

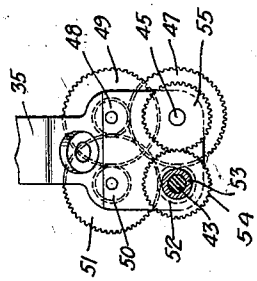


Fig. 4.

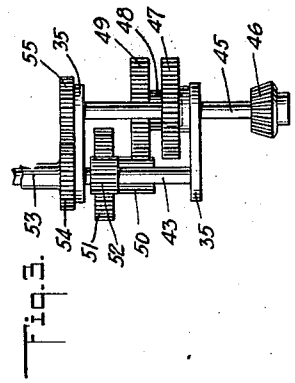


Fig. 3.

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UNITED STATES PATENT OFFICE.

SCHAI A. WINETZKY, OF NEW YORK, N. Y.

TELLURIAN.

Application filed August 29, 1921. Serial No. 496,325.

To all whom it may concern:

Be it known that I, SCHAI A. WINETZKY, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county of Bronx and State of New York, have invented a new and Improved Tellurian, of which the following is a full, clear, and exact description.

This invention relates to a tellurian for showing the operation of the causes which produce the succession of day and night and the changes of the season.

The object of this invention is to provide a tellurian having means for revolving the earth and moon about the sun, and means for utilizing this revolving motion to rotate the earth and revolve the moon about the earth.

A further object is the provision of a tellurian having an illuminated sun.

These and other objects of the invention will be more clearly understood from the following detailed description and the accompanying drawings.

Figure 1 is a side elevation with part of the casing members cut away to show the operating mechanism;

Figure 2 is a horizontal cross section through the supporting base;

Figure 3 is a side elevation of the gearing mechanism taken along the line 3—3, Figure 1;

Figure 4 is a plan view of the gearing mechanism shown in Figure 3; and

Figure 5 shows the device for connecting the supporting arm of the moon to the axis of the earth.

Referring to the above-mentioned figures, a bell-shaped base 10 is held in position on a base plate 11 by means of screws 12. A U-shaped member 17 has two tubular arms 13 and 14 which fit into openings 15 and 16 in the base member 10. The free end of this U-shaped member 17 is supported on a stand 18. A tube 27 having an opening 63 in its side is rigidly mounted in the base plate 11 and projects up through the neck 25 of the bell-shaped base 10. Supported on the upper end of the tube 27 is a sun 28. Rotatably mounted on the tube 27 is another tube 29 which also projects up through the neck 25 of the bell-shaped base 10. Rigidly connected to the upper end of this tube is an arm 31, and to the lower end a gear 32. Rotatably mounted on the upper part of tube 27 is a member 64 which is fixed to the arm 31. A crank 19 projects through the tubular arm 14 and is supported by two bearings 20 and 21 therein. Connected to the inner end of the crank is a worm 22 which meshes with the gear 32 fixed to the tube 29. This worm 22 is held in position by a member 23 which is rotatably mounted in the bell-shaped base 10. Electric wires 30 are shown extending through the tubular arm 13 and the tube 27 to the sun 28. These wires are means for supplying current to an electric bulb to illuminate the sun. Any other means of illumination may be used as, for instance, gas, when the gas pipe would be fixed in the tubular arm 13 and the tube 27 converted into a base for a gas lamp. The base plate 11 extends beyond the bell-shaped base 10. A plate on which are marked the signs of the zodiac may be mounted on the extension of the base plate 11.

A bevel gear 24 is fixed to the upper end of the bell-shaped base 10 by means of a pin 26. A gear 34 is fixed to the arm 31. Rotatably mounted on the arm 31 is a gear frame shaft 36. Attached to the lower end of this gear frame shaft is a bevel gear 37. A rod 39 which has two bevel gears 40 and 41 fixed to the ends is rotatably mounted in the bearings 42 supported by the arm 31. Gear 40 equals gear 41; gear 24 equals gear 37. The bevel gear 40 meshes with the bevel gear 24 and the bevel gear 41 meshes with the bevel gear 37 and thus the bevel gear 24 is connected to the bevel gear 37 to operate the gear frame shaft 36 when the arm 31 is rotated about the bell-shaped base 10. A casing 33 is attached to the arm 31 which serves to encase the bevel gears 24 and 37 and the means for connecting them. A bearing 38 which is mounted in the casing 33 serves as a supporting means for the gear frame shaft 36.

A gear frame 35 is fixed to the gear frame shaft 36. Rotatably mounted in the gear frame 35 is a shaft 45 which has a bevel gear 46 connected to its lower end. This bevel gear 46 meshes with the gear 34. An earth 44 has a shaft 43 which extends in line with its axis. For clearness of explanation this shaft 43 will be called the axis of the earth. The axis 43 is rotatably mounted in the gear frame 35 and is inclined at an angle of 23° 30′ from vertical. The axis of the earth 43 is connected to the shaft 45 through a plurality of gears. A gear 47 is fixed on the shaft 45 and meshes with a gear 48 rigidly connected to gear 49 which is rotatably

mounted in the gear frame 35. Gear 49 meshes with a gear 50 rigidly connected to a gear 51 which is rotatably mounted in the gear frame 35. This gear 51 meshes with the gear 52 fixed to the axis 43 of the earth. Rotatably mounted on the axis 43 of the earth is a sleeve 53 which has a gear 54 fixed to its lower end. This gear meshes with another gear fixed to the shaft 45. A curved arm 56, which has a forked end 58 pivotally connected on arms 57 integral with the sleeve 53, supports a moon 62. A roller 59 is rotatably mounted on the arm 56 and rides on a plate 60 which is inclined at an angle of 5° 9′ to the horizontal. This plate 60 is supported by a supporting member 61 which is rigidly connected to the gear frame 35. The gears are to be so proportioned that for each revolution of the gear 32 (one year), gear 54 makes about 13¼ revolutions (months), and gear 52 makes about 366 revolutions (days).

The earth, sun and moon are not constructed in the proper ratio of their size as this would be practically impossible. A map is superimposed upon the earth. This map may show any of the desired details of land and water features and the lines marking the various zones and degrees of latitude or longitude.

The operation of this device is as follows:

The crank 19 is turned, operating the worm 22, and the worm gear 32 is operated by the worm. The tube 29 is rotated by the gear 32, which is fixed to it, and the arm 31 rotates with the tube 39. As the arm 31 rotates, the bevel gear 24 which is fixed to the stand 10 rotates the gear wheel 40, and the motion of the gear wheel 40 is conveyed through the rod 39 and bevel gear 41 to the bevel gear 37. The bevel gear 37 is fixed to the gear frame shaft 36 which is rotatably mounted on the arm 31 and thus the shaft 36 is rotated. As the shaft 36 rotates, the gear frame 35 which is fixed thereto is revolved about it. The gear frame carries the shaft 45 to which is fixed the bevel gear 46 and as this gear meshes with the fixed gear 34 the shaft 45 is rotated as the gear frame 35 revolves. The turning motion of shaft 36 is conveyed through gears 47, 48, 49, 50, 51 and 52 to the axis of the earth thus rotating the earth. The gear 55 is fixed to the shaft 45 and meshes with the gear 54 integral with the sleeve 53 to which the arm carrying the moon is attached, and thus the motion of the shaft 45 revolves the moon about the earth. A plate 60 which is inclined at an angle of 5° 9′ to the horizontal is provided which cooperates with the roller 59 rotatably mounted on the arm supporting the moon to give the latter its true orbit about the earth. Thus it is seen as the arm 31 is turned about the base 10 for the operation of crank 19 that the earth and moon are revolved about the sun, the earth rotated about its axis and the moon revolved about the earth. The axis of the earth is constantly inclined at 66½ degrees to the ecliptic.

Instead of the combination of gear employed to convey the motion of shaft 45 to the axis 43 of the earth other combinations of gears might be employed such as two gears having the ratio 27:1. Instead of the combination of gears 24, 37, 40 and 41, two sprockets and chain may be employed, the sprockets to be placed where gears 24 and 37 in the original combination are used.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the exact details herein illustrated since manifestly the same can be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Claims.

1. A tellurian comprising, a base, a sun and means for illuminating it mounted on the base, a bevel gear fixed to the base, a tube rotatably mounted in the base, an arm and a casing carried by the upper end of tube and a gear fixed to the lower end, a crank mounted in bearings in the base and having a worm fixed thereto which meshes with the tube gear for operating the latter, a gear frame fixed to the upper end of a shaft rotatably mounted in the arm, a bevel gear fixed to the lower end of the frame shaft, a rod mounted in the casing and having a bevel gear on each end for connecting the bevel gear fixed to the base to the bevel gear fixed to the frame shaft to operate the latter as the casing revolves about the base, an earth having its axis properly inclined to the sun rotatably mounted in the gear frame, a gear fixed to the arm and concentric with the frame shaft, a shaft having a bevel gear which meshes with the fixed gear on the arm, a plurality of gears mounted in the frame and connecting the rotary frame shaft to the axis of the earth, a moon connected by an arm to a sleeve mounted on the axis of the earth, a gear integral with the sleeve, a second gear mounted on the rotary frame shaft to convey the motion of the latter to the moon, a plate inclined at an angle to the horizontal mounted on the gear frame, and a roller mounted on the moon connecting arm and co-operating with the plate to give the moon the proper relative positions to the earth.

2. A tellurian, comprising a base, a post fixed in the base, a sun carried by the post, a sleeve rotatably mounted on the post, an arm in the form of a casing mounted on the upper end of the sleeve, means fixed to the lower end of the sleeve for rotating it, means for operating said sleeve rotating means, a vertical shaft rotatably mount-

ed in the outer end of the arm carried by the sleeve, means mounted on the base and connected with said vertical shaft for operating it upon the rotation of said sleeve and arm about the sun carrying post, a gear frame fixed to the shaft, an earth provided with an axle rotatably mounted in said gear frame with its axis properly inclined to the sun, a sleeve rotatably mounted on said axle, a moon connected by an arm to said sleeve and associated with the earth, a train of gears mounted in said gear frame for rotating the earth and the moon about the earth, means mounted on the gear frame for giving the moon the proper relative motion to the earth as both rotate, and means carried by the shaft mounted in the outer end of the arm for operating said train of gears as the shaft is rotated through the rotation of the arm and sleeve about said sun carrying post.

SCHAI A. WINETZKY.