

No. 620,603.

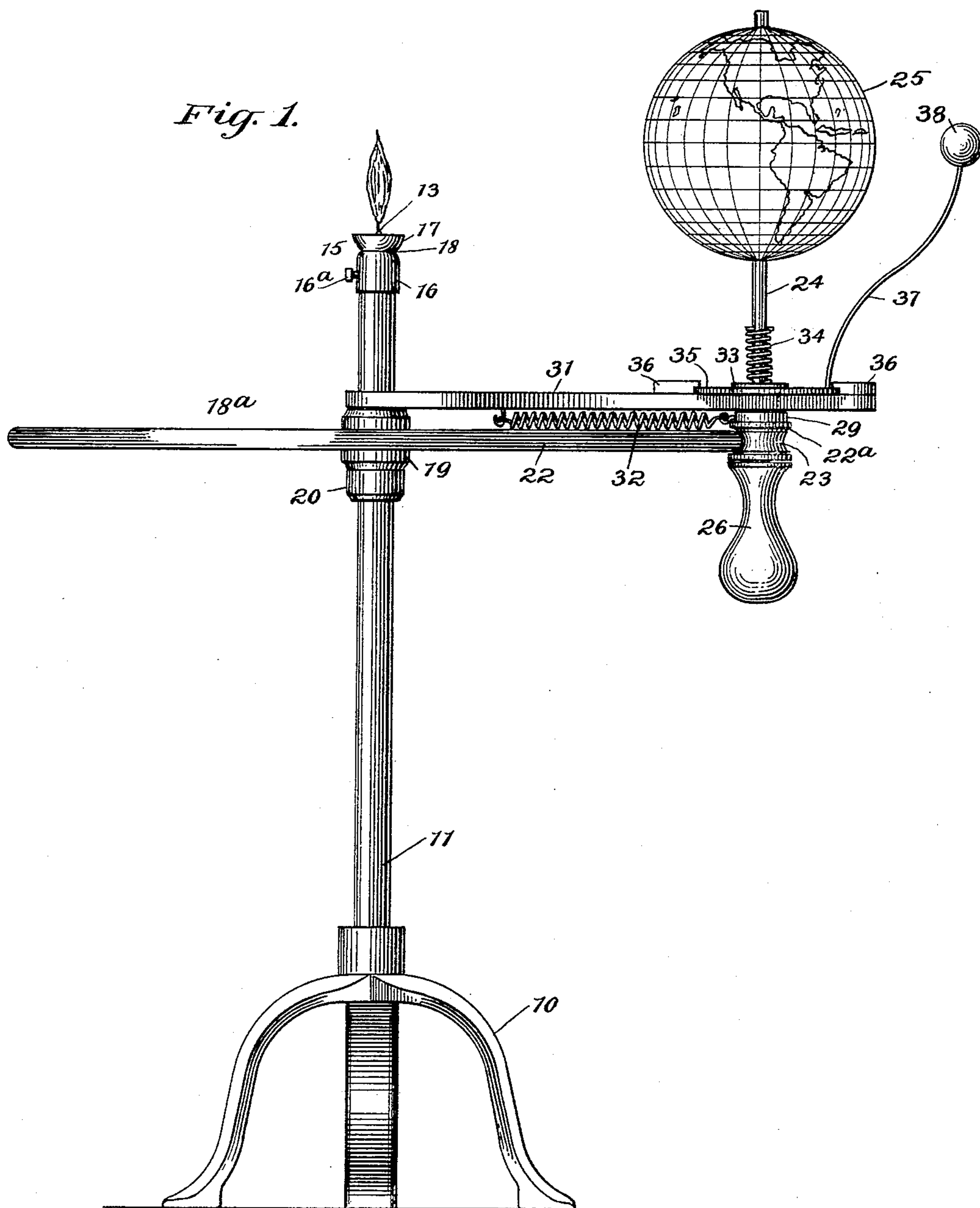
Patented Mar. 7, 1899.

J. A. MITCHELL & F. A. REYNOLDS.  
TELLURIAN.

(No Model.)

(Application filed Sept. 21, 1898.)

2 Sheets—Sheet 1.



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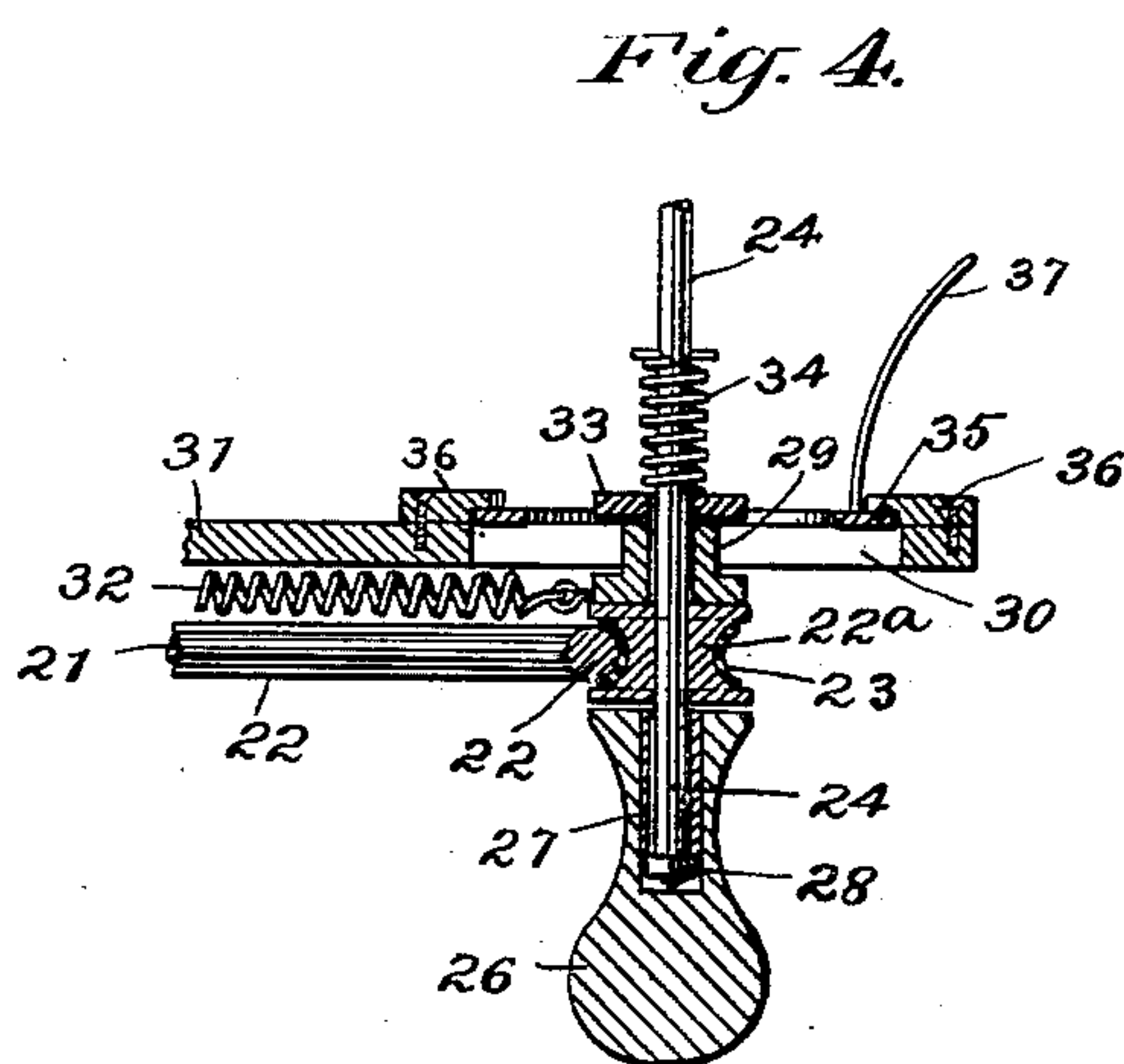
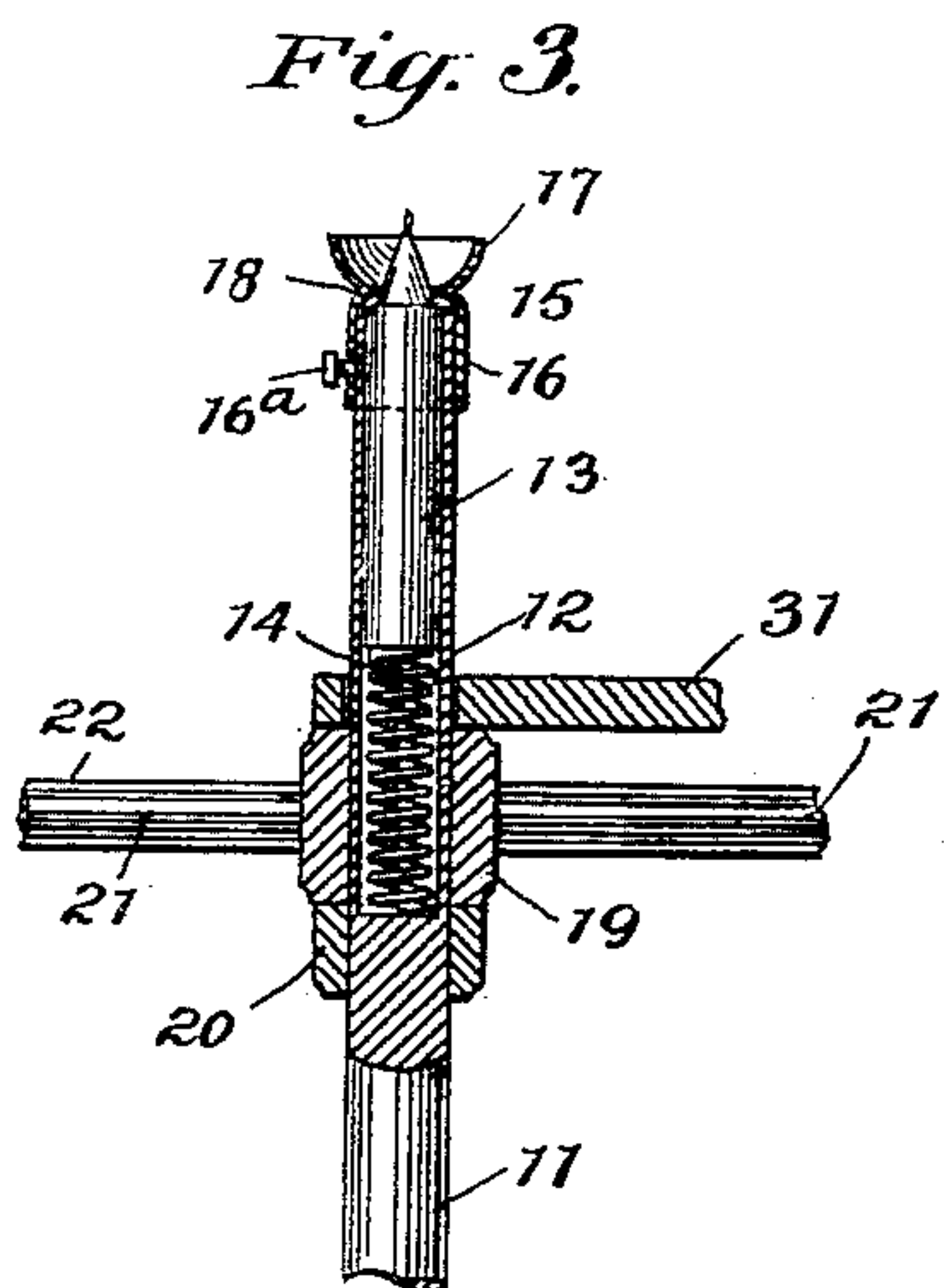
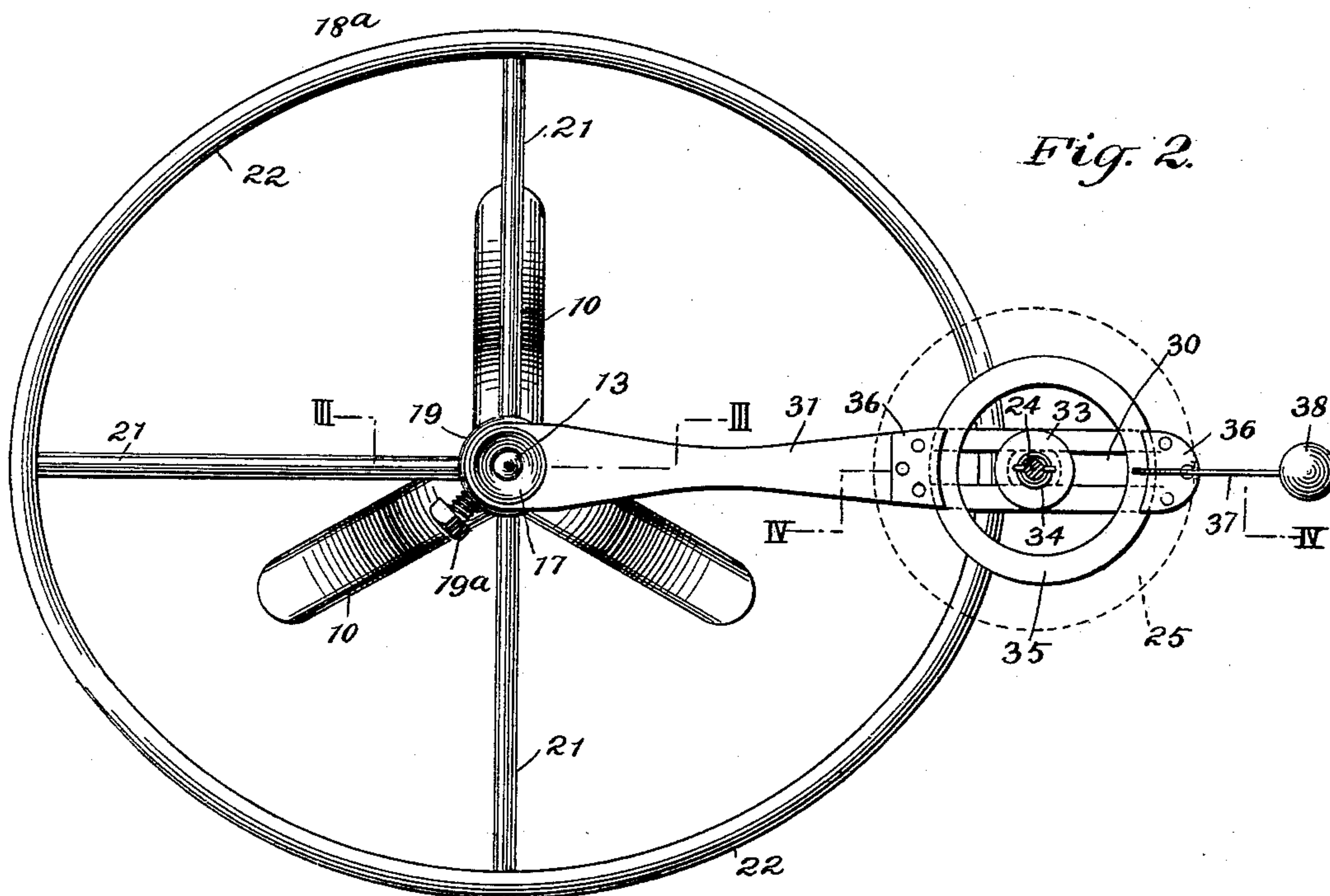
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# UNITED STATES PATENT OFFICE.

JOSEPHINE ABBIE MITCHELL AND FRANK ARTHUR REYNOLDS, OF  
LEWISTON, MAINE.

## TELLURIAN.

SPECIFICATION forming part of Letters Patent No. 620,603, dated March 7, 1899.

Application filed September 21, 1898. Serial No. 691,553. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPHINE ABBIE MITCHELL and FRANK ARTHUR REYNOLDS, of Lewiston, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Tellurians, of which the following is a full, clear, and exact description.

This invention relates to tellurians, but more particularly to such devices as are adapted for use in schools and other places of instruction.

The primary object of the invention is to provide a simple, attractive, and efficient device whereby the motion and relative position of the earth and moon with respect to the sun and to each other may be readily ascertained at all times, so that the cause of day and night and change of seasons, &c., incident to such motion and position may be readily and fully explained.

A further object is to provide simple and efficient means by which a body representing the moon may be independently moved around a globe or spherical device representing the earth and to provide means by which the various inclinations of the axis of the earth may be clearly illustrated.

With these and other objects in view the invention consists in the construction and combination of the several parts, substantially as hereinafter described and then pointed out in the claims at the end of the description.

Referring to the accompanying drawings, forming a part of this specification, wherein similar figures of reference designate similar parts, Figure 1 is an elevation of one form of device embodying our invention. Fig. 2 is a sectional plan taken immediately beneath the globe, the globe being shown in dotted lines. Fig. 3 is a fragmentary vertical section, partly in elevation, taken on the line III III of Fig. 2; and Fig. 4 is a fragmentary vertical section, partly in elevation, taken on the line IV IV of Fig. 2.

The base 10 may be of any suitable form or construction, above which is an upright or support 11, which has its upper end provided with a recess 12. In the recess is a candle

13, representing the sun, which is normally forced upward by a spring 14, so that when the candle is lighted and is being consumed the spring will keep the lighted end of the candle at a fixed height. The upper end of the support 11 above the candle is provided with a cap 15, having a flange or base 16, fitting the support 11 and secured thereto by a set-screw 16<sup>a</sup> or in any desired manner. This cap may be adjusted on the support and has its upper end cup-shaped, as at 17, to form a receptacle for the unconsumed tallow or wax of the candle, and where the cup-shaped flange 17 or receptacle unites with the base 16 a rib or reduced portion 18 is formed, against which the upper end of the candle is adapted to rest, so as to prevent the candle being forced out of the recess 12 by the spring 14 and to keep the lighted end thereof at the proper height. Instead of the cap 15 a screw-plug may be arranged in the upper end of the support to retain the candle at a suitable and fixed height while being consumed, and instead of the candle a spherical or other body may be employed to represent the sun, which body may be transparent or translucent, so as to permit it to be lighted from within.

For the purpose of ascertaining the motion and position of the earth with respect to the sun the support or standard 11 has an elliptical or oval track 18<sup>a</sup>, around which a globe or body representing the earth is adapted to travel. This track represents the orbit of the earth and comprises a hub 19, secured by a set-screw 19<sup>a</sup> or otherwise to the upright or support 11 above the fixed collar 20, the arms or spokes 21, and the rail 22, which latter, as shown, is round and is normally engaged by a grooved pulley or wheel 22<sup>a</sup>, which is adapted to rotate on its axis as it is moved around the track. The pulley 22<sup>a</sup> may have a rubber or other frictional engaging surface 23, so as to be less liable to slip on the tracks, said pulley being rigidly secured to a vertical shaft or rod 24. On the upper end of the rod is a globe or body 25, representing the earth, while the lower end of the rod is provided with a suitable handle 26, in which the rod 24, which serves as the axis for the globe, is adapted to rotate. The handle may be of wood and is



recessed to receive a sleeve 27, the lower end of the rod being provided with a nut 28, which rests against the lower end of the sleeve 27 to prevent the handle from being removed from said rod or shaft, though instead of this arrangement the handle may be held to the shaft in any suitable manner. Above the pulley 22<sup>a</sup> is a slide 29, which has an elongated or polygonal portion which is held to move radially in the slot 30 of a supporting-arm 31, which rotates around the upright 11. The slide 29 is loosely arranged on the shaft 24 and is normally forced inward by the spring 32, which has one end thereof secured to the slide and its other end to the arm 31, so that the pulley 22<sup>a</sup> will always be retained against the rail 22, but in such a manner that the pulley and shaft 24 will move toward or from the support 11, according to the form of the rail or track. The slide has a loose member or collar 33, which rests against the upper surface of the arm 31 and is normally forced downward by a spring 34, arranged around the shaft 24. The slide by its yielding member permits the globe and its axis or shaft to be tilted to any desired inclination by the handle 26, so as to represent the inclination of the axis of the earth, though the spring 32 may be arranged to cause the shaft or axis 24 to assume a tilted position.

The arm 31 has a ring or annulus 35 mounted thereon so as to be rotated or moved around the shaft 24 independently thereof. As shown, the ring is held to the arm by the brackets or plates 36, which are secured to said arm and have one edge provided with a lip, which fits over the upper surface of the ring. On the ring and projecting upward therefrom is a rod or support 37, which carries at its upper end a ball or body 38, representing the moon or a satellite, which is adapted to be moved around the globe 25. By this means the body representing the moon or satellite may be moved by hand around the globe 25, so as to show the motion and position of the moon with respect to the earth and the sun.

The invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings. Assuming the parts to be in the position shown, it will be seen that if the candle is lighted and the globe 25 moved by the handle 26 around the track 18<sup>a</sup> the globe and its shaft or axis 24 will be rotated by the pulley 22<sup>a</sup>, which engages the rail 22, the spring 32 serving to constantly keep the pulley in contact with said rail. The ring 35 and the body 38, carried thereby, may be moved around the globe 25 as the latter travels around the central illuminating-body, or the body 38 may be moved around the globe independent of the movement of the latter body.

We thus provide a simply, attractive, and efficient device by which the motion and position of the earth and moon with respect to the sun and to each other may be readily illustrated.

It will be understood that the planets of the system may also be indicated by attaching wires or rods to the rail 22, which carry balls or globes at their upper ends, and that some of the parts may be dispensed with or others substituted therefor without departing from the spirit of our invention.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a tellurian, a stationary support, means representing the sun mounted on said support, a stationary toothless rail forming a track carried by the support, an arm held to and rotatable around the support, said arm having one end thereof slotted, a rotatable shaft carrying a globe movable lengthwise on the arm, a pulley secured to the shaft and normally held against the track to impart rotary movement to said shaft, and an independently-movable body carrying a representation of the moon held on the arm and movable around the shaft, substantially as described.

2. In a tellurian, a stationary support, means representing the sun mounted on said support, an elliptical stationary toothless rail forming a track carried by the support, an arm held to and rotatable around the support, a yieldingly-held slide carried by said arm, a shaft carrying a globe rotatable in the slide, and a pulley secured to the shaft and normally held against the track to impart rotary movement to said shaft, substantially as described.

3. In a tellurian, a vertical stationary support, means representing the sun mounted on said support, an elliptical stationary toothless rail forming a track carried by the support, an arm held to and rotatable around the support, a yieldingly-held slide carried by said arm, a shaft carrying a globe rotatable in the slide, a pulley secured to the shaft and normally held against the track to impart rotary movement to said shaft, and an independently-rotatable ring carrying a representation of the moon held on the frame and movable around the shaft, substantially as described.

4. In a tellurian, a stationary support, means representing the sun mounted on said support, a stationary toothless rail forming a track carried by the support, an arm held to and rotatable around the support, said arm having one end thereof slotted, a slide yieldingly held in the slotted end of said arm, a shaft carrying a globe rotatable in the slide and adapted to be moved at various angles, means for rotating the shaft in the slide, and an independently-movable body carrying a representation of the moon held in the arm and movable around the shaft, substantially as described.

5. In a tellurian, a vertical stationary support, means representing the sun mounted on said support, an elliptical toothless rail forming a track carried by the support, an arm held to and rotatable around the support, said



arm having one end thereof slotted, a slide yieldingly held in said arm, a shaft carrying a globe rotatable in the slide and adapted to be moved at various angles, a pulley secured  
5 to the shaft, a spring normally holding the pulley in frictional engagement with the track to impart rotary movement to said shaft, and an independently-movable ring carrying a representation of the moon held on the arm  
10 and movable around the shaft, substantially as described.

6. In a device of the character described, the combination with a rotatable shaft and means for rotating said shaft, of a movable  
15 slide in which the shaft is journaled, said slide comprising two members, and a spring arranged on the shaft and normally pressing

the members of the slide together, substantially as described.

7. In a device of the character described, 20 the combination with a suitably-supported track, of a rotatable shaft, means for rotating said shaft, a handle arranged at one end of the shaft, a rotatable arm, a slide having a loose member movable in said arm, and a 25 spring arranged on the shaft and normally pressing the loose member of the slide against the upper surface of the arm, substantially as described.

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