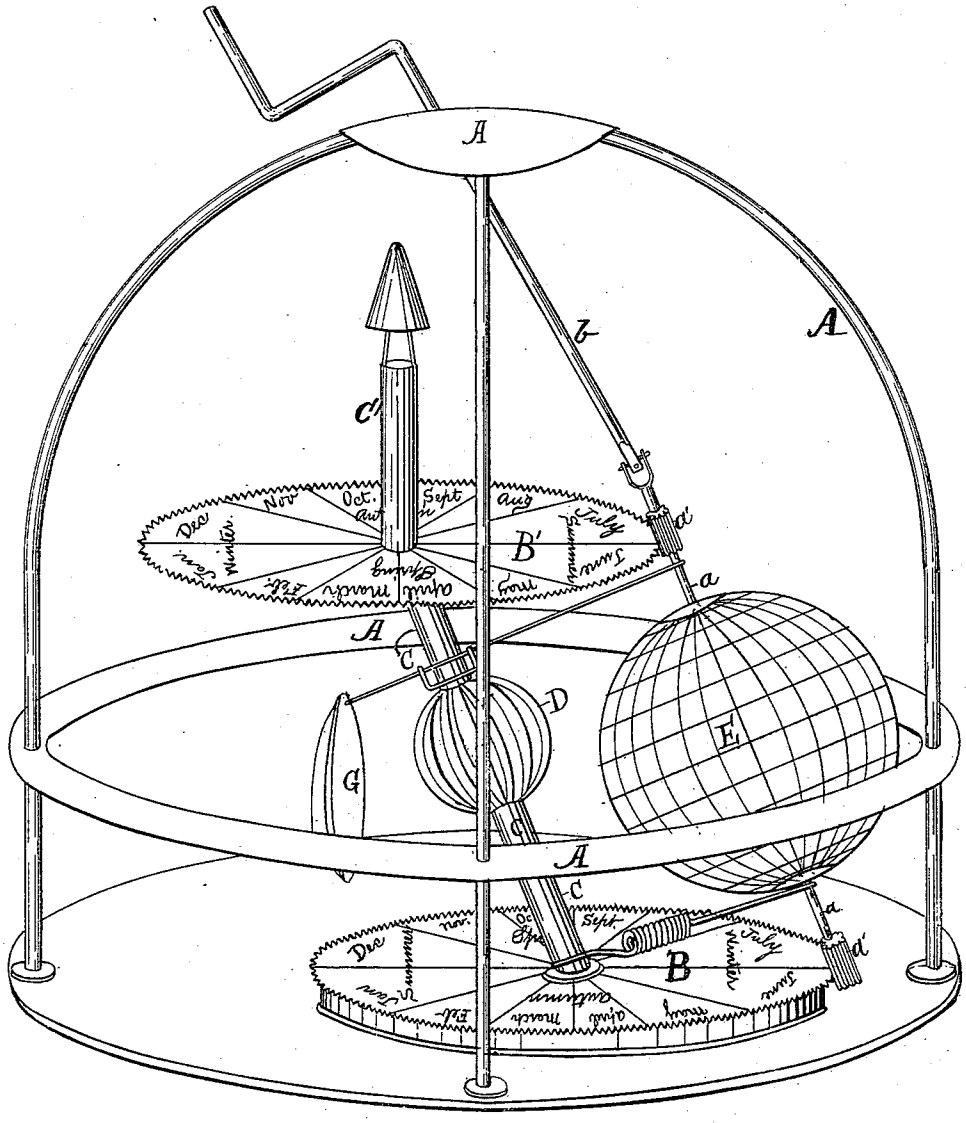
F. HOWES.

TELLURIAN.

No. 192,369. Patented June 26, 1877.




Chas. F. Sleeper.
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# UNITED STATES PATENT OFFICE.

FREDERICK HOWES, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN TELLURIANS.

Specification forming part of Letters Patent No. **192,369**, dated June 26, 1877; application filed May 19, 1877.

*To all whom it may concern:*

Be it known that I, FREDERICK HOWES, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in School Apparatus, which improvement is fully set forth in the following specification and accompanying drawing.

The object of my invention is to produce a simple apparatus or "tellurian" for use in schools or similar places, by which the effect of the motion of the earth in its elliptic path around the sun on the seasons and lengths of days in the different parts of the world may be readily observed.

In the drawings, A represents a frame, to the lower part of which is attached a cogged dial-plate, B, from which projects a hollow standard, C, on which is a lantern, D, representing the sun. The upper portion of this standard C supports another cogged dial-plate, B′, the standard being so sloped that the two dial-plates are not directly over one another, while the lantern is in the center of the frame between them. E is a globe, attached at its poles to a wire, *a*, supposed to be always pointing to the north star, which has pinions *a′ a′* to engage with the gears or cogs on the dials B and B′. From this wire, and jointed to it by a universal joint, extends a handle, *b*, through a plate, A′, on one side of its center, and over the dial B′. Springs are attached to the wire *a*, and they revolve around the standard C to keep the pinions engaged with the gears or cogs. A reflector, G, is also attached in a similar manner, to revolve with the globe and throw the light of the lantern upon it. C′ is a chimney to carry off the gases from the lantern.

It will be readily perceived from the arrangement of the dials that by turning the handle the globe will be passed around the dials with an inclination varying according to its position, bringing the light to bear upon that portion exposed to the full rays, and one entire rotation around the two dials shows the different portions of the globe as they are exposed more or less to the action of the sun, thus explaining the relative position of the earth with the sun at different seasons; and by having the dials marked with the months and seasons a true idea of them in the opposite hemispheres can quickly be obtained by the pupil.

My invention also shows, as the globe itself revolves, the cause of the variation in the length of days at different seasons of the year, when it is noon on one side of the earth and midnight on the other, and the changes from light to darkness.

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

The apparatus above described, consisting of the frame A, dials B and B′, standard C, lantern D, and globe E, arranged to operate together, as described.

FREDC. HOWES.

Witnesses:

CHAS. F. SLEEPER,

WM. ZITTEL.