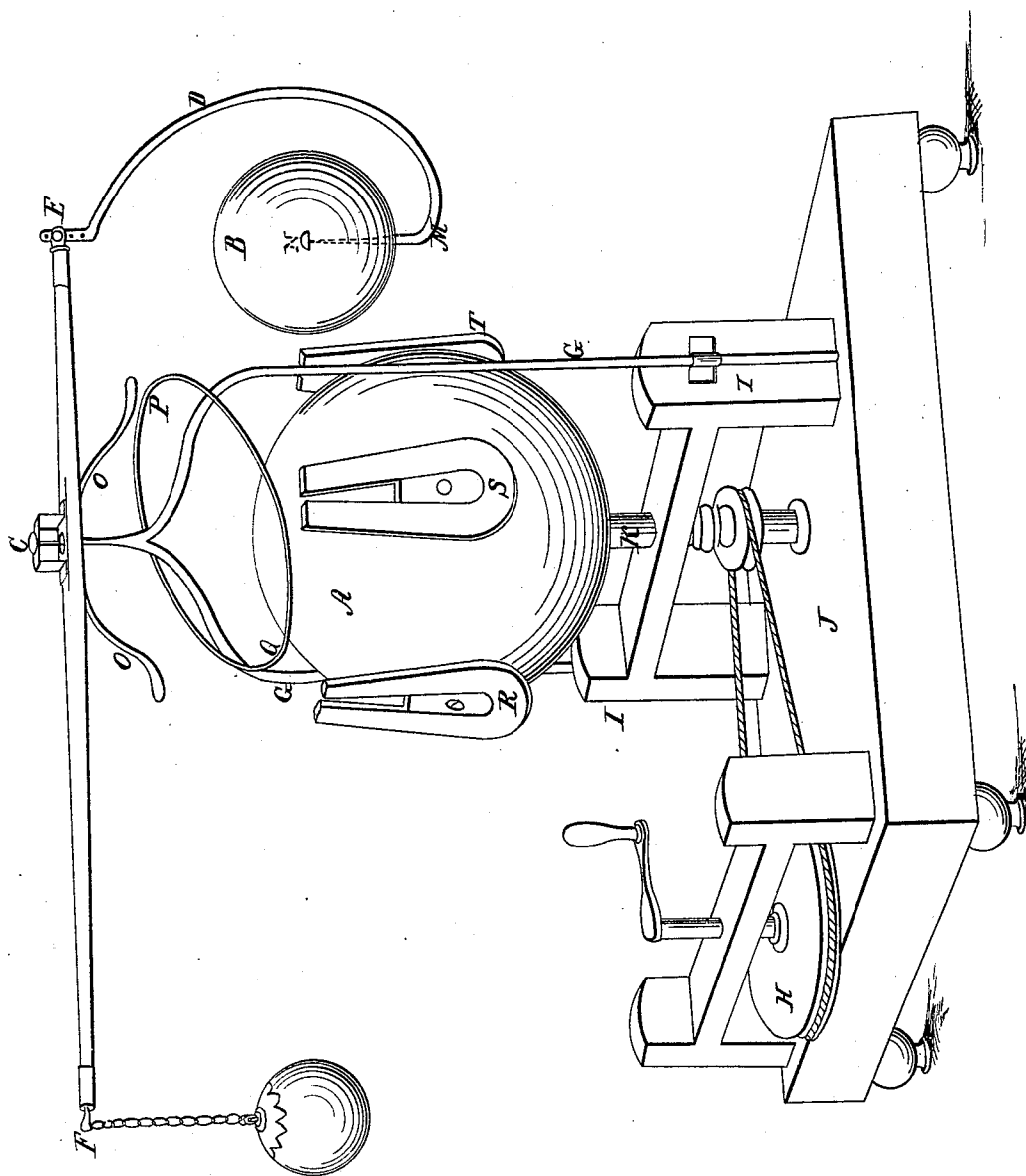


J. W. Wetmore,

Astronomical Apparatus.

N^o 19392.

Patented Feb. 16, 1858.



UNITED STATES PATENT OFFICE.

J. W. WETMORE, OF ERIE, PENNSYLVANIA.

IMPROVED GRAVIMOTOMETER.

Specification forming part of Letters Patent No. **19,392**, dated February 16, 1858.

To all whom it may concern:

Be it known that I, J. W. WETMORE, of the city of Erie, in the county of Erie and State of Pennsylvania, have invented a Gravimotometer, or a new and Improved Orrery; and I hereby declare that the following is a full and exact description, to wit:

The nature of my invention consists in this, viz: Attracting bodies affect each other differently in states of motion and rest. The common top, for example, does not stand on its point when at rest; but when in motion its center of gravity falls without its base, and yet it sustains itself from falling. When particles of matter are in contact (so called, as in solids) motion communicated to one particle gradually influences other particles in the same direction. The same law applies to attracting parts of matter not in contact. One attracting body moving past another tends to carry the latter in the same direction. The design of my invention is to prove and illustrate this fact. I use magnets and iron because the intensity of the attraction makes the effects obvious. I use the term "gravimotometer" to mean a machine to test and measure the effect of motion on the gravitating bodies. Attraction of gravitation, or rather the cause of this attraction, embraces both the centripetal and tangent forces; but the tangent force is exerted on the adjacent surface of the second body, and this would produce a double motion—viz., on its axis and along the tangent. Then the centripetal force, acting conjointly, produces the resultant orbit motion.

The design of my invention is to produce the revolutions of a body on its axis and in an orbit by means of the revolutions of a central attracting body, and thus illustrate planetary motion. It is a new application of magnetic induction.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I. *As to form of construction.*—By any of the usual means I cause the globe A to revolve on a vertical axis. In the accompanying drawing, J is a stand; I I, a frame to sus-

tain K, the vertical shaft on the top of which is the globe A. On the sides of A are the magnets R S T, &c. B is an iron globe or a skeleton-globe, with a sheet-iron zone on the horizontal equator suspended near the magnets and turning on a steel pivot in the end of D M N. N is a little above the center of B. D is a rod, attached to E F at E. E F is a bar with a weight at F to balance the globe B. C is a glass socket above an opening through the bar. G G are brass rods fastened in I, passing up near to A and uniting in a steel point directly over the top of A. C turns upon this point. It is a wheel to communicate motion to K and C. P Q is a light brass ring fastened to G G, twenty-three and a half degrees from a horizontal plane. O O are light wires, which may touch at P as E F revolves on the point C. There may be a magnet at P and small plates of iron at O O.

II. *Operation and Effect.*—Cause A to revolve. Then the globe B will revolve on its vertical axis on the point N, and also in an orbit about A on the point C. The effect of the ring P Q will be to show the variations of the planet in the zodiac and cause B to describe an orbit in an oblique plane and hence produce an inclination of its vertical axis to that plane.

III. *Variations in the application of the principle.*—If the surfaces of the globes are made rough and of suitable form for arresting the air, then by revolving A rapidly the effects may be produced to some extent without magnets. The magnets might be made, for the purposes of this invention, curved and attached to A either vertically or horizontally. A may be the iron globe and the magnets be then attached to B. On a pivot on the top of B may be a bar similar to E F, from one end of which may be suspended a small globe to represent a moon, X. Then, at every position in its orbit about B, the action of A and B to produce a revolution of X on its axis would be in opposite directions and X would not revolve. B may be formed with a fixed axis, its poles turning in sockets, one at M and the other in a branch of D, running over the top of B. Then

the axis of B could be inclined to the plain of the equator of A. E F may be suspended over A by a cord. If the magnetic condition of B becomes such as that attraction ceases, it must be jarred or heated or kept away from the magnets until restored.

What I claim is—

1. The new use of magnetic induction to form a gravimotometer by means of the magnets on the equator of the globe A, so that when A is revolved on a vertical axis, it will cause the

iron globe B to revolve in an orbit about A, and also on its vertical axis.

2. The machine described as an improved orrery, because the revolutions correspond in cause and directions with the actual revolutions of the planets, all substantially as set forth.

J. W. WETMORE.

Witnesses:

D. W. FITCH,
JOHN VAN MCCOLLOM.