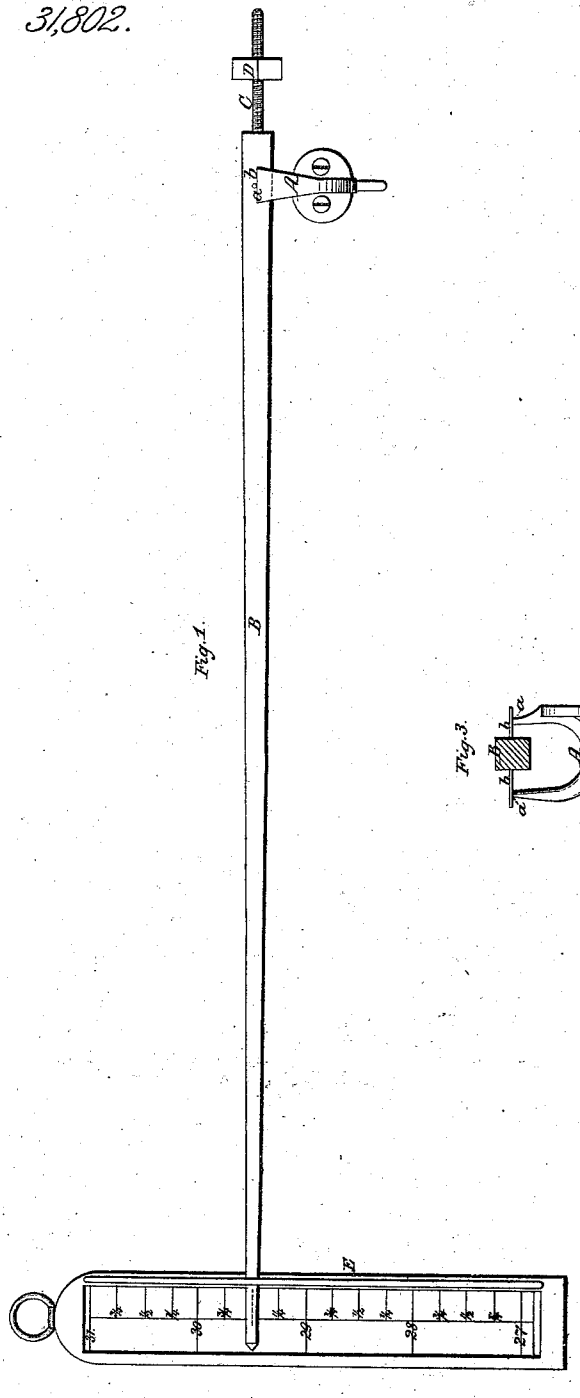
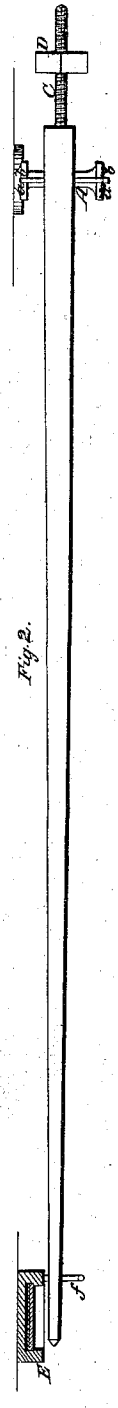
J. A. Gridley.

Barometer.

Patented Mar. 26, 1861.

31,802.





Witnesses.
J. W. Coomb.
R. S. Spencer.

Inventor.
J. A. Gridley
per Munn & Co
Attys.

UNITED STATES PATENT OFFICE.

J. A. GRIDLEY, OF SOUTHAMPTON, MASSACHUSETTS.

AEROMETRIC BALANCE.

Specification of Letters Patent No. 31,802, dated March 26, 1861.

To all whom it may concern:

Be it known that I, J. A. GRIDLEY, of Southampton, in the county of Hampshire and State of Massachusetts, have invented a new and Improved Barometer; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the barometer. Fig. 2 is a top view of the same. Fig. 3 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

My improved barometer consists principally of a balance beam having a long arm composed wholly, or for the most part, of wood or other light substance, and a short arm composed for the most part or wholly of metal or other heavy substance with a poise to counterpoise the longer arm. By reason of the lesser specific gravity and greater bulk of the longer arm, as compared with the shorter one, the balance is caused to oscillate with variations in the pressure of the atmosphere, as will be presently fully explained, and so to indicate the pressure upon a suitably arranged and graduated scale.

To enable others skilled in the art to make and use my invention I will proceed to describe it with reference to the drawings.

A is an inverted bow shaped piece of metal, constructed to be secured to the wall or side ceiling of a room or to any suitable upright support, and having two horizontal and parallel straight edges *a*, *a*, to form bearings for the pivots *b*, *b*, of the balance beam. This beam is made of a taper bar B, of wood of about eighteen (18) inches, or more or less, in length having a screw C, of iron or other stiff metal inserted longitudinally and tightly into its thicker end, and projecting therefrom to the length of from one and a half (1½) to two (2) inches and having a nut D, of lead or other heavy metal fitted easily to the said screw. The pivots *b*, *b*, may be made of a single piece of wire inserted right through the bar B, or of two short pieces inserted in line with each other on opposite sides, the position of said pivots being near the screw C, and just sufficiently above the middle of the box to cause the center of gravity of the balance beam B C D, to be slightly below the pivots when the beam is properly balanced in a horizontal position by the adjustment of the nut C, which constitutes an adjustable poise. The bearings *a*, *a*, are so arranged as to support the balance beam in a position parallel with the wall or side ceiling.

E is a vertical scale which is suspended or secured against the wall or side ceiling in such position relatively to the beam support A, that the end of the longer arm of the beam will pass near it in its vertical oscillation, and that when the beam is horizontal the said arm should be somewhere between the figures 29 and 30, on the said scale; and to the said scale there is secured a guard *f*, of wire to prevent too great lateral oscillation of the beam.

To adjust the barometer when the support A, and scale E, have been suitably arranged and secured, the beam B C D, is placed with its pivots *b*, *b*, on the bearings *a*, *a*, and the poise D, is adjusted on the screw C, which composes the principal portion of the shorter arm of the beam, to bring the longer arm to the proper elevation relatively to the scale according to the pressure of the atmosphere at the time; and when so adjusted the longer arm of the beam will rise with an increase and fall with a diminution of the pressure of the atmosphere. The cause of the rising and falling of the longer arm of the beam, is that the buoyancy of two bodies of equal weight varies as do their quantity of mass or volume. Hence as the atmosphere becomes denser the long arm (having the greater volume) must rise, and the converse when the atmosphere becomes less dense or rarer.

What I claim as my invention, and desire to secure by Letters Patent, is:—

A barometer composed of a balance beam having one of its two arms composed wholly or principally of wood, and the other principally or wholly of metal, a suitable support for such beam, and a scale upon which the degree of oscillation of the said beam can be indicated, substantially as herein set forth.

J. A. GRIDLEY.

Witnesses:

ARTEMUS BELL,

AREL G. JUDD.