

A. E. Lazell.

Hygrometer.

N^o 75432

Patented Mar. 10, 1868.

Fig. 1.

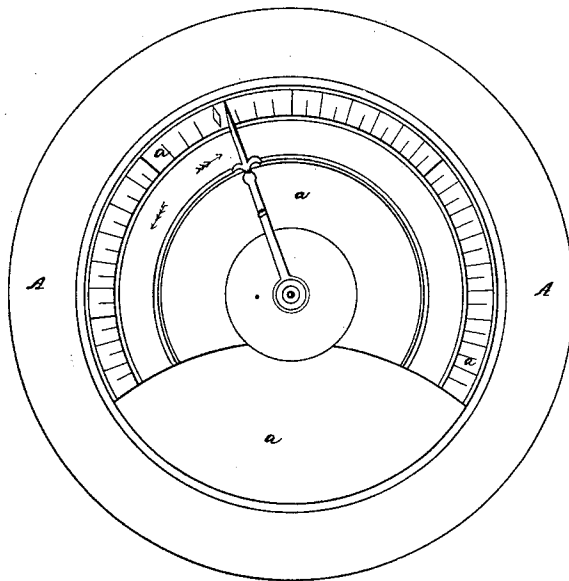
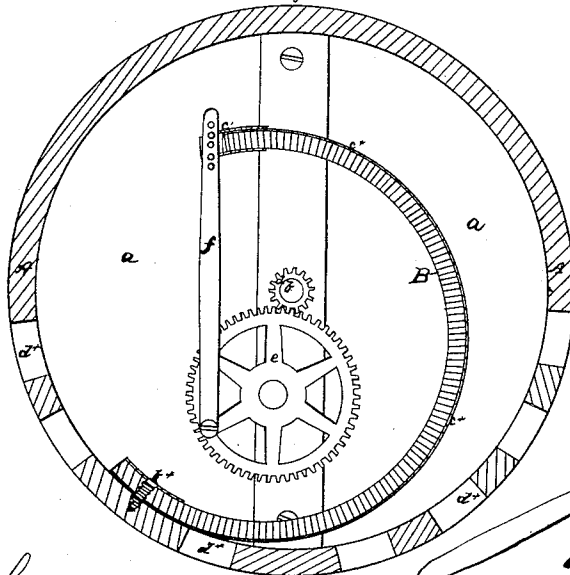


Fig. 2.



Witnesses.

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A. E. LAZELL, OF WEST MERIDEN, CONNECTICUT.

Letters Patent No. 75,432, dated March 10, 1868.

IMPROVEMENT IN HYGROMETERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. E. LAZELL, of West Meriden, in the county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Hygrometers; 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, making a portion of this specification, in which—

Figure 1 is a plan view of a hygrometer constructed according to my invention.

Figure 2 is an inverted plan view of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a semicircular wooden strip, formed with the grain of the wood transverse to its length, and having one of its sides or surfaces coated with cement, or other material, in such manner as to exclude the air therefrom, so combined with a suitable index that the expansion or contraction of the strip caused by the varying quantity of moisture absorbed by or evaporated from the exposed surface of the same, will operate to turn the index to indicate the degree of humidity of the atmosphere.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A represents the circular case of the apparatus, and *a* shows the top plate fixed in the upper part of the said case; any desired portion of the circumferential edge of this top plate having formed or marked upon it a scale, *a**, which may be graduated in any suitable manner. Secured upon the upper end of the vertical central pivot *b* is an index or finger, *c*, and secured to the lower end of the said pivot, underneath the top plate *a*, is a small pinion, *d*, which gears into a spur-wheel, *e*. A connecting-rod, *f*, has one of its ends pivoted upon a pin, *b'*, attached to the spur-wheel *e* near the rim thereof, and its opposite end attached to the free extremity of a semicircular wooden strip, *B*, as shown at *c'*, in fig. 2, the other or opposite extremity of the said strip being firmly attached to the side of the case *A*, as shown at *b**. This strip is formed with the grain of the wood lying in a position transverse to the length of the strip, and its outer surface is coated, as indicated at *c**, with cement, or with any other suitable material or substance, which will exclude air from the said surface, and thus render the same impervious to moisture. Holes or openings, *d**, are formed in the sides of the case *A*, in order that the condition of the air within the said case may be the same as that of the atmosphere. When the humidity of the atmosphere increases, the exposed inner surface of the strip *B* absorbs an additional quantity of moisture from the same, which causes the innermost side or portion of the said strip to expand, while no expansion takes place in the outermost side thereof, which is protected from moisture by the coating or covering *c** of cement, or other material, as hereinbefore set forth, so that by this means the strip spreads or expands to the arc of a larger circle, the free extremity thereof moving outward, and, acting through the rod *f*, spur-wheel *e*, and pinion *d*, turns the index to an extent proportioned to the increase of moisture in the air, and thus causes the index to indicate such increase upon the scale *a**. When the humidity of the atmosphere is diminished, a portion of the moisture is abstracted or evaporated from the inner side of the strip *B*, which causes the said side to contract, and thus bring the strip to the arc of a smaller circle, thus moving the free extremity of the said strip inward and operating the index to move in a reverse direction, and thus indicate the decrease of moisture in the air by its changed position with reference to the graduations of the scale. The strip *B* being constructed with the grain of the wood situated transversely to the length of the said strip, the inner or exposed surface thereof is rendered much more sensitive to the action of moisture than would be the case if such grain were concentric with the arc upon which the strip is formed, and as a consequence the apparatus is rendered capable of indicating changes in the degree of humidity of the atmosphere with much greater nicety and exactitude than would otherwise be the case.

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

The curvilinear strip of wood, constructed as described, and having one of its surfaces rendered impervious to moisture, in combination with an index, substantially as and for the purpose specified.

A. E. LAZELL.

Witnesses:

CHAS. PAGE,
WM. CHAPMAN.