A. W. ANDERSON.

Sun-Dial.

No. 196,550 Patented Oct. 30, 1877.

Fig. 1.

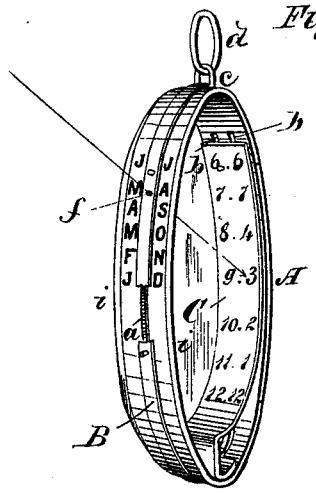


Fig. 2.

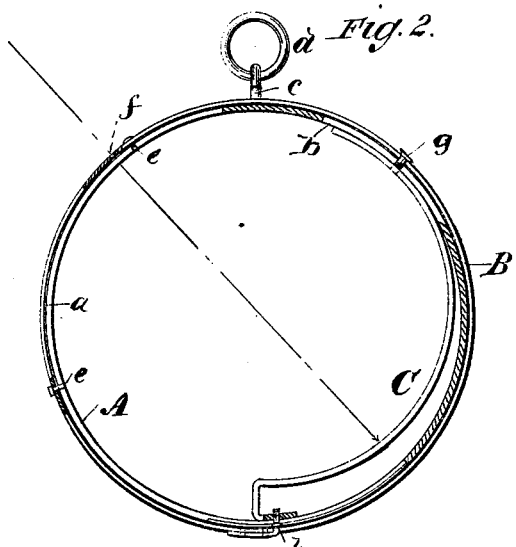
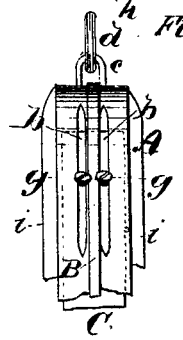


Fig. 3.



WITNESSES:

Francis McArdle.

J. H. Scarborough.

INVENTOR:

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BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

AXEL W. ANDERSON, OF BEDFORD, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILLIAM B. HECKERMAN, OF SAME PLACE.

IMPROVEMENT IN SUN-DIALS.

Specification forming part of Letters Patent No. **196,550**, dated October 30, 1877; application filed September 1, 1877.

To all whom it may concern:

Be it known that I, AXEL W. ANDERSON, of Bedford, in the county of Bedford and State of Pennsylvania, have invented a new and Improved Sun-Dial, of which the following is a specification:

Figure 1 is a perspective view of my improved sun-dial. Fig. 2 is a central transverse section, and Fig. 3 a detail view of a portion of the device.

Similar letters of reference indicate corresponding parts.

My invention consists of a ring having circumferential slots, surrounded by a perforated adjustable band, and containing an adjustable dial or scale, formed in an epicycloid curve, and having engraved on it hour-marks, upon which a pencil of light falls through the aperture in the band.

Referring to the drawings, A is a hoop or ring, having circumferential slots *a b*, and provided with an eye, *c*, and ring *d*, by which it may be suspended. A narrow thin band, B, surrounds the ring A, and is provided with guide-pins *e*, which extend inward into the slot *a*. A small aperture, *f*, is made through the band, and along the surface of the ring, at the sides of the band B, letters are engraved, which represent the months of the year. A scale or dial, C, formed on an epicycloid curve, and having marked on it figures representing the hours of the day, is secured to the ring A by screws *g*, which pass through the slots *b*, and by a screw, *h*, which passes through the slot *a*. Crystals *i* are fitted to the ring A to exclude dust, and to add weight to give dial increased steadiness.

The manner of using my improved sun-dial is as follows: The aperture *f* in the band B is placed opposite the letter indicating the appropriate month. This gives the required declination for the month. The instrument is then suspended by the ring *d*, and placed so that a pencil of light passes through the aperture *f* and falls on the dial C. The figure touched by the pencil indicates the hour. If great accuracy is required, the spaces between the figures may be graduated.

The instrument is not limited to any particular size, as it may be made so small as to serve as a charm for a watch-chain, or it may be made of large size and mounted on a fixed support.

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

The dial C, formed on an epicycloid curve, as described, in combination with ring A and band B, as specified.

AXEL WILLIAM ANDERSON.

Witnesses:

ALEX. RAMSEY,

GEO. BLYMYER.