(No Model.)

D. L. SMITH.

SUN DIAL.

No. 277,799. Patented May 15, 1883.

fig. 1

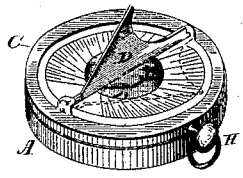


fig. 2

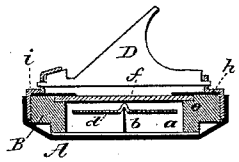


fig. 3

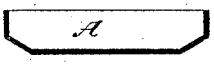


fig. 4

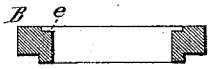


fig. 5

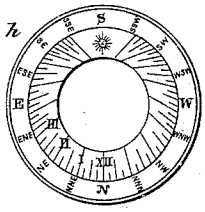


fig. 6



fig. 7

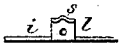


fig. 8

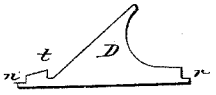


fig. 9

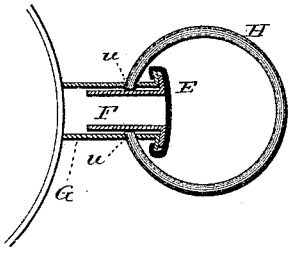
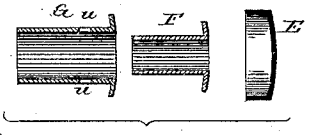


fig. 10



Witnesses.
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Jos. D. Earle

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Inventor
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UNITED STATES PATENT OFFICE.

DWIGHT L. SMITH, OF WATERBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF TO EARL A. SMITH, OF SAME PLACE.

SUN-DIAL.

SPECIFICATION forming part of Letters Patent No. 277,799, dated May 15, 1883.

Application filed February 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT L. SMITH, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Sun-Dials; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view; Fig. 2, a vertical section; Figs. 3, 4, 5, 6, 7, and 8, detached views; Fig. 9, a longitudinal section of the stem enlarged; Fig. 10, a longitudinal section of the three parts of the stem detached.

This invention relates to an improvement in sun-dials, the object being to construct a sun-dial which shall be very cheap and yet accurate, and which may be readily carried in the pocket or worn as a charm; and the invention consists in the construction, as hereinafter described, and more particularly recited in the claims.

The back or body of the case A is cup-shaped, as seen in Fig. 3. In a recess on the inside of this cup a disk, *a*, is arranged, upon which is a center-point, *b*, and upon this center-point *b* the magnetic needle *d* is set in the usual manner of setting a compass, and upon the disk *a* the usual points of compass are indicated. Upon this disk a ring-shaped filling, B, is set, (shown detached in Fig. 4,) the internal diameter of this ring forming the walls of the chamber within which the needle will rotate, as seen in Fig. 2. On the upper side of this filling B and around the opening is an annular shoulder, *e*, on which a disk of glass, *f*, is placed to protect or cover the needle. Upon this ring or filling a flat ring, *h*, is arranged, (shown detached in Fig. 5,) on which the usual sun-dial graduations are made. This graduated ring is arranged concentric with the compass-chamber. Over these parts thus placed together a ring, C, is set, the said ring having a flange, *i*, which will lap onto the graduated ring *h*, and the parts A C, closed together or secured in any convenient manner, hold all the parts in their proper relation to each other. At diametrically-opposite points on the inner edge of the flange *i* of the ring C are ears *l* and *m*, to receive corresponding pintles *n* and *r* of the style D. This style is cut from sheet metal, and so as to present the usual angle for a sun-dial style. The pintles rest in the ears *l m*, so that the style may be turned down to lie in a horizontal plane, as indicated in broken lines, Fig. 1, or raised to stand perpendicular, as seen in that figure. To hold it in its proper vertical position, one ear, *l*, is constructed with an inward-projecting spring or elastic finger, *s*, which overhangs an upward projection, *t*, on the style. This spring *s* has a slight groove upon its inside, as seen in Fig. 7, which will engage the projection *t* of the style when it is turned upright and hold it in that position, but yield to permit the style to be turned into its horizontal plane. By this construction all the parts are readily made from sheet metal and of the cheapest possible character, and yet may be made highly ornamental. The filling B may be made from wood, pasteboard, leather or any suitable cheap material. I therefore produce a sun-dial very cheap, and yet which is as accurate and reliable as more expensive dials.

To attach the sun-dial to a chain some convenient device is necessary, and in order to preserve the cheap construction of the parts this must be of a correspondingly cheap character. To this end I form a stem with a ring. This stem consists of a sheet-metal cup, E, to form the exterior of the head of the stem, a flanged tube, F, and a second flanged tube, G, the internal diameter of the tube G being a little larger than the external diameter of the tube F. The walls of the tube G have a perforation, *u*, at diametrically opposite points. The tube F is set within the tube G, as seen in Fig. 8, the flange of the one standing upon the flange of the other, and then the flanged end set within the cup E and the edge of the cup closed over the flanges of the tubes to secure the three parts together. This brings the inner tube so as to cover the perforations *u* in the outer tube upon the inside. Into these perforations the two ends of a cut ring, H, are introduced, the ring being sprung for such introduction. The ring is then free to swing upon its two ends as a pivot, in the usual manner of a watch-stem ring. The open end of the tubular part G of the stem is then soldered or

otherwise connected to the case of the dial. The inner tube forms a stop against which the ends of the rings will abut and prevent its accidental disengagement. This construction produces a ring-stem which is very cheap, yet strong and durable, and, while especially applicable to this construction of dial, it is equally applicable to other articles where such a ring is required. This part of my invention is therefore not to be limited to use upon a sun-dial.

In the illustration I have shown the ring C as inside and inclosed by the case A; but, if preferred, the ring may be outside the case. In the first construction the stem will be attached to the part A, but in the other it will be attached to the part C.

I claim—

1. The combination of the cup-shaped part A of the case, the flanged ring C, the needle within the case, graduated dial *h*, and the style D, the said ring C constructed with ears *l m* to receive the pintles of the style, one of said ears provided with the spring-finger *f* to engage said style in its vertical position, substantially as described.

2. The combination of the cup-shaped part A of the case, the ring C, the ring-shaped filling B, forming the walls of the needle-chamber, the needle arranged in said chamber, the graduated dial *h*, and the style D, hinged to said ring, substantially as described.

3. The ring-stem consisting of the outer flanged tube, G, the inner flanged tube, F, the cup-shaped head E, the said tube G having a perforation, *u*, on opposite sides, and the divided ring H, having the two ends introduced through said perforation, substantially as described.

DWIGHT L. SMITH.

Witnesses:
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FRED S. ARMSTRONG.