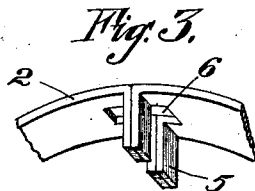
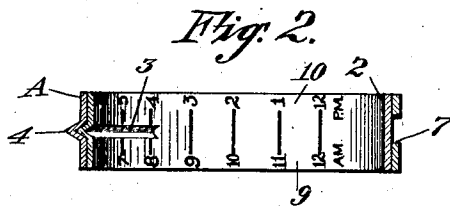


933,556.

Fig. 1.



R. H. Berry
Carpenter

BY *Geo. H. Strong*
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

HANS HANSEN, OF OAKLAND, CALIFORNIA.

SOLAR TIMEPIECE.

933,556.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed March 27, 1909. Serial No. 486,168.

To all whom it may concern:

Be it known that I, HANS HANSEN, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Solar Timepieces, of which the following is a specification.

My invention relates to a solar timepiece. Its object is to provide a simple, cheap, practical device capable of being carried in the vest pocket, and which, when properly set, will enable one, during the hours of daylight and for a period of days during which the sun remains at approximately the same elevation, to tell the time of day.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the invention. Fig. 2 is a sectional view on the line X—X, Fig. 1. Fig. 3 is a detail of the finger-hold and light slot.

A represents an outer ring or casing, and 2 an inside ring having a limited rotary action concentrically within the first ring. The two rings are suitably held in position with respect to one another, and so that one ring may turn with respect to the other, by appropriate means, as by forming a peripheral circumferential bead 3 on the inner ring fitting a corresponding circumferential inside groove 4 on the outer ring. The inner ring comprises a metal band having the ends brought together and turned inwardly to form the radial contiguous flanges 5 to afford a finger-hold by which the inside ring may be turned, or held so that the outside ring can turn. The contiguous ends of the inside ring are oppositely slotted to form an opening 6 disposed in the plane of a circumferential slot 7 of the outer casing, and which slot occupies approximately one-third of the circumference of the outer ring. When the device is suspended from the handle 8 the slot 7 will be near the top of the ring.

The inside of the inner ring is marked off at regular intervals for approximately half of its circumference, to represent the hours of daylight; that is to say, for the Northern Hemisphere from 3 a. m. to 12 m., and 1 p. m. to 9 p. m.; the hours for a. m. being numbered consecutively in one direction, as

shown at 9, and the hours for p. m. being correspondingly marked, at 10, in the opposite direction, so that the hour 1 p. m. stands opposite the hour 11 a. m., 2 p. m. opposite 10 a. m., etc.

In constructing the scales 9 and 10, six hours represent approximately one-quarter of the earth's revolution, or 90° of the circle. That is to say, the hours from the markings from 3 a. m. to 9 a. m. will occupy a space of 90° on the inner circumference of the inner ring, so that each hour space occupies approximately 15° .

In practice, to set the device it is suspended by means of a string or the like attached to the handle 8, so that the device will hang radial to the earth, and then the inner ring is adjusted so that a beam of light passing through the slot 7 in the outer ring and the opening 6 between the ends of the inner ring will concentrate on a mark in one or the other of the columns 9 or 10, according to the hour of the day that it happens to be. Thus, if it is 12 o'clock noon when the device is to be set, as shown by a watch or the like, the inside ring is adjusted until the beam of light passing through the hole 6 falls on the marking represented by the figure "12" on the inside of the inside ring.

When the device is once set, the time of day during the hours of daylight may be read by simply suspending the ring, and then observing the point on which the beam of light through the opening 6 falls, on the inside of the inside ring. Manifestly the markings 9—10 may be subdivided to read for half hours, quarters, or other divisions of an hour. When the inside ring is once set it remains stationary for some days, and will then only need readjustment and resetting as the sun descends or ascends the sky.

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

1. A solar timepiece comprising concentric rings, the outer ring having a circumferential slot and the inner ring being slidably mounted within the outer ring and having an opening coincident with the slot thereof, to admit a beam of light, said inner ring having on its inner surface a notation indicating the hours of the day, the space on which the notation is, intercepting said beam of light, said inner ring consisting of a circular band having its ends bent radially

inward to form a finger hold, and said opening in the inside ring being proximate to said projection.

2. A solar timepiece comprising concentric movable rings, the outer ring having a circumferential slot and the inner ring having an opening coincident with the slot to pass a beam of light, a notation indicating the hours of the day on the inside of the inside ring, the space on which the notation is, intercepting said beam of light, said outside ring having means for suspending the

device, and the two rings provided with intermeshing circumferential tongues and grooves to hold the parts together and prevent displacement thereof.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HANS HANSEN.

Witnesses:

M. V. COLLINS,
CHARLES A. PENFIELD.