No. 849,475. PATENTED APR. 9, 1907.

E. G. HEWITT.

SUN DIAL.

APPLICATION FILED JULY 8, 1905.

Fig.1

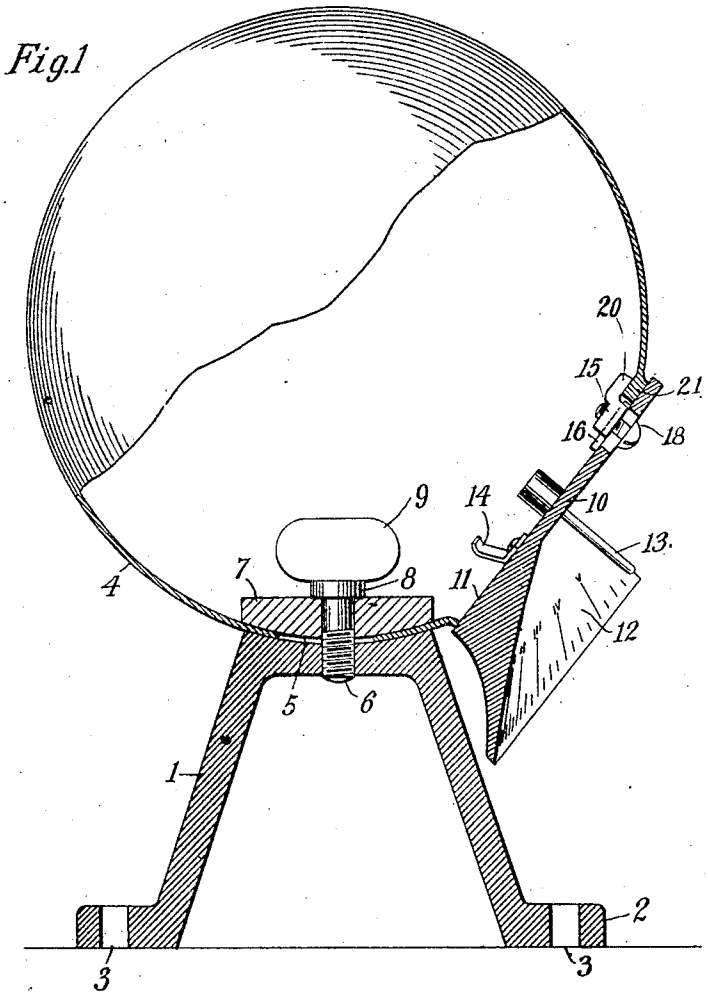
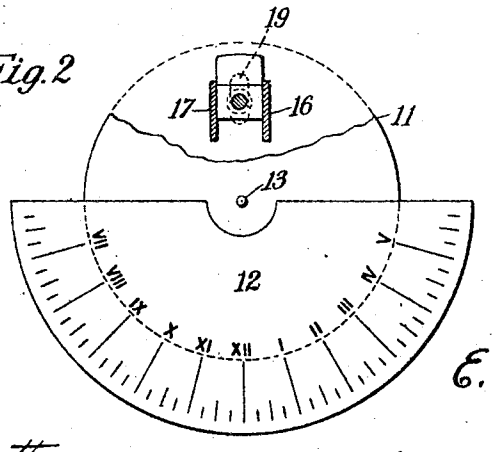


Fig.2



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SUN-DIAL.

No. 849,475. Specification of Letters Patent. Patented April 9, 1907.

Application filed July 8, 1905. Serial No. 268,836.

To all whom it may concern:

Be it known that I, EDWARD G. HEWITT, a citizen of the United States, residing at New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sun-Dials, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

My invention relates to sun-dials, and has for its chief object to provide a simple device of this character which shall be universally adjustable to permit it to be used in any latitude within certain limits and to enable the same to indicate local sun time, mean solar time, or the time of a standard meridian—as, for example, so-called "standard" time.

A further object of the invention is to provide a device of this kind with the adjustable features mentioned which shall be of pleasing and ornamental appearance.

In carrying out my invention in its preferred form I provide a base member, on which the time-indicating devices proper are mounted. The top of the base member is spherically concave to fit a hollow sphere which rests thereon. The sphere or globe is secured to the base by a screw device passing through the walls of the sphere, the opening in the said wall through which the said bolt passes being considerably larger than the bolt to permit the globe to be adjusted by rotating it about the bolt as an axis in a horizontal plane and also in any vertical plane, the latter movement being permitted by the size of the opening through which the fastening-bolt passes. On the lower half of the sphere—as, for example, at a position about midway between the bolt-opening and the diameter at right angles to that passing through the bolt—is secured a dial member provided with a gnomon which is to throw its shadow upon the usual graduations on the dial member. The dial member is adapted to rotate in its own plane about the gnomon as an axis, with the result that the graduations being shifted in advance or to the rear of the shadow will indicate time fast or slow, as may be desired, of local sun time. The dial member is provided with devices by which it may be locked in adjusted position.

For a more detailed explanation of my invention reference may now be had to the annexed drawings, in which—

Figure 1 is a side view of the device, partly in section; and Fig. 2 is a plan view of the dial member removed from the sphere.

The base which carries the time-indicating devices is designated by 1. It consists, preferably, of a hollow conical casting having at its lower edge an outwardly-extending flange 2, provided with holes 3, through which bolts or screws may pass to secure it to a suitable support. The top of the base is concave to fit, preferably with some closeness, the sphere or globe 4. The latter is hollow and is provided with an opening 5, through which passes the bolt 6, which screws into the top of the base member. Inside of the sphere is a clamping-disk 7, engaged by the head 8 of the bolt 6. The bolt is provided with a thumb-nut or other device 9, by which it may readily be tightened, a suitable aperture being of course provided in the sphere-wall to permit access to the bolt. It will now be clear that by loosening the bolt and clamping-disk the sphere may be adjusted on the base in a manner analogous to the operation of a ball-and-socket joint.

In the wall of the sphere above the aperture 5 is a larger opening, in which is secured the dial member 10. The latter consists of a circular base 11, provided with a flaring or conical graduation-surface 12, extending, preferably, for one hundred and eighty degrees, or one-half the circular extent of the base. The graduation-surface is provided with the necessary marks to indicate hours and as many fractions thereof as may be desired. At the center of the dial member is the gnomon 13, extending perpendicularly from the base and secured thereto in any convenient way. Assuming now that the dial member is arranged with its base covering the opening in the sphere, it is clear that if the latter be adjusted so that the diameter thereof which passes through the gnomon is parallel with the axis of the earth the shadow cast by the gnomon will indicate local solar time, the twelve-o'clock graduation of the dial being of course located at the lowermost point—that is to say, in the meridian. For the purpose of bringing the gnomon into parallelism with the earth's axis the sphere may be shifted in any direction about the bolt 6, as before explained.

In order to permit access to the bolt-head for the purpose of loosening or tightening the same, the dial member is removably attached to the sphere, so that by taking off the dial

the user may insert his hand through the opening, and thus properly manipulate the bolt. Various devices may be employed for removably securing the dial—as, for example, those shown in the drawings. In this case the inner side of the base of the dial member is provided with two or more outwardly-extending clips or wings near its periphery, one of which is shown at 14, Fig. 1, the wall of the sphere being held in the angle formed by the wings or clips and the base of the dial member, as indicated in Fig. 1. On the other side of the base, opposite the wings, is a clip 15, arranged to slide radially on the base between guides 16 17 and provided with a screw 18, extending through a slot 19 in the base of the dial member. The clip is provided with an outwardly-extending finger 20, reaching over and engaging when the clip is in its outermost position the edge 21 of the sphere-wall. It will now be seen that if the screw 18 is loosened and the clip 15 permitted to drop downward toward the center of the dial member the latter may readily be lifted out of its position. Also it may be rotated in either direction upon the sphere about the gnomon as an axis, and when properly adjusted it may be locked in position by sliding the clip 15 into engagement with the sphere-wall and then tightening the screw 18.

From the foregoing it will be seen that the sun-dial which I have devised and herein described may be adjusted and locked in adjusted position to meet every possible requirement. At the same time the sphere, which is the most prominent and most noticeable part of the apparatus, may be made ornamental in character—as, for example, by engraving on its polished surface a map representing the surface of the earth.

It is to be understood, of course, that the form herein specifically described is merely the preferred embodiment of the invention, which may be varied greatly without departure from its proper scope.

What I claim is—

1. In a sun-dial, the combination with a base, of a hollow sphere having an opening in its wall, the said opening being located immediately over the base, a bolt extending through the said opening in the sphere-wall into the base, and means enabling the bolt to lock the sphere in adjusted position on the base, as set forth.

2. In a sun-dial, the combination with a base, of a hollow sphere having an opening in its wall above the base, screw devices engaging the base and adapted to lock the sphere in adjusted position on the base, means for manipulating the screw devices, located within the sphere, an opening in the sphere-wall, a dial member removably mounted over the opening, and means for securing the dial member in position, as set forth.

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