

F. Shepherd,
Geographical Globe,

No 18,931,

Patented Dec. 22, 1857.

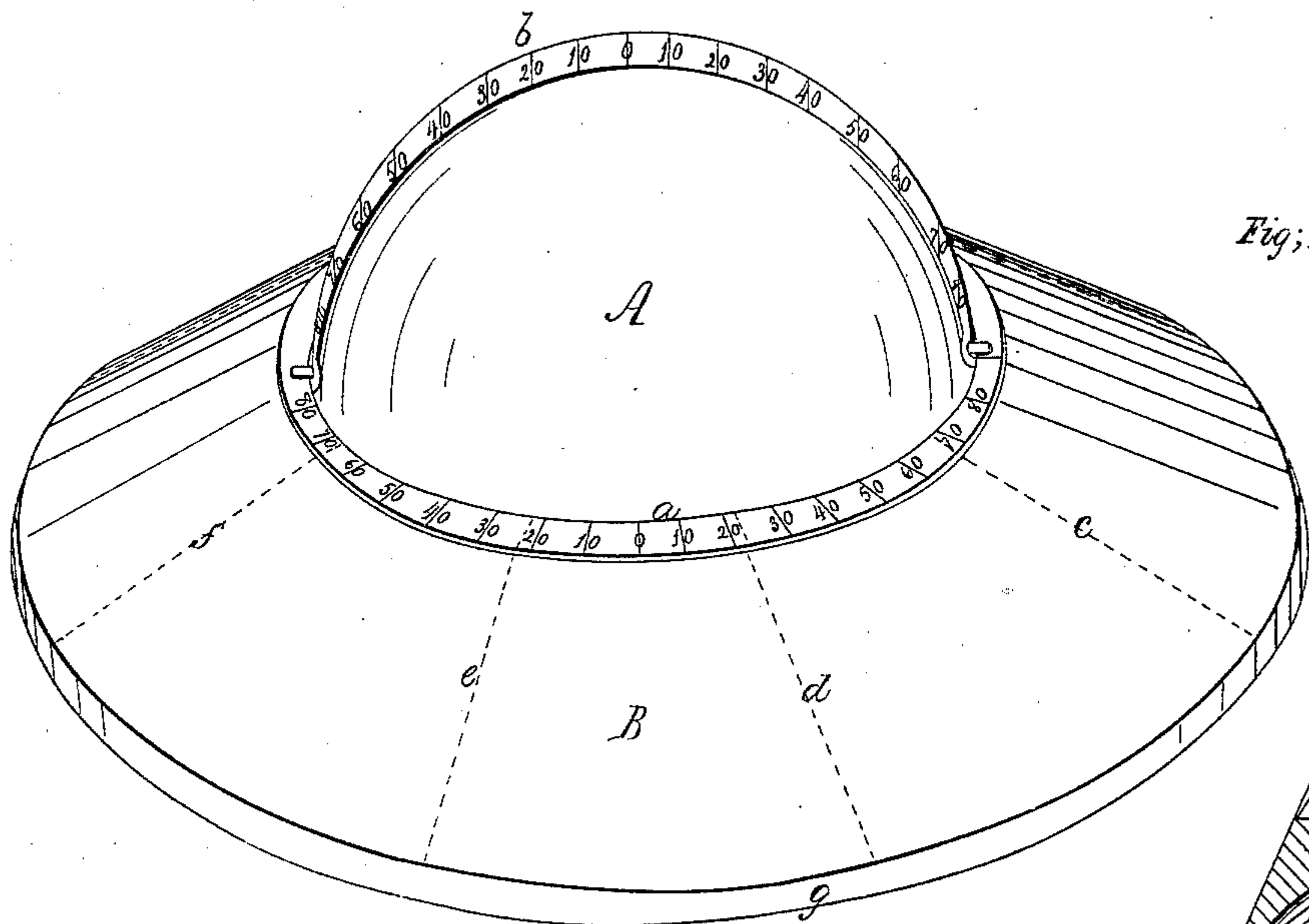


Fig. 1.

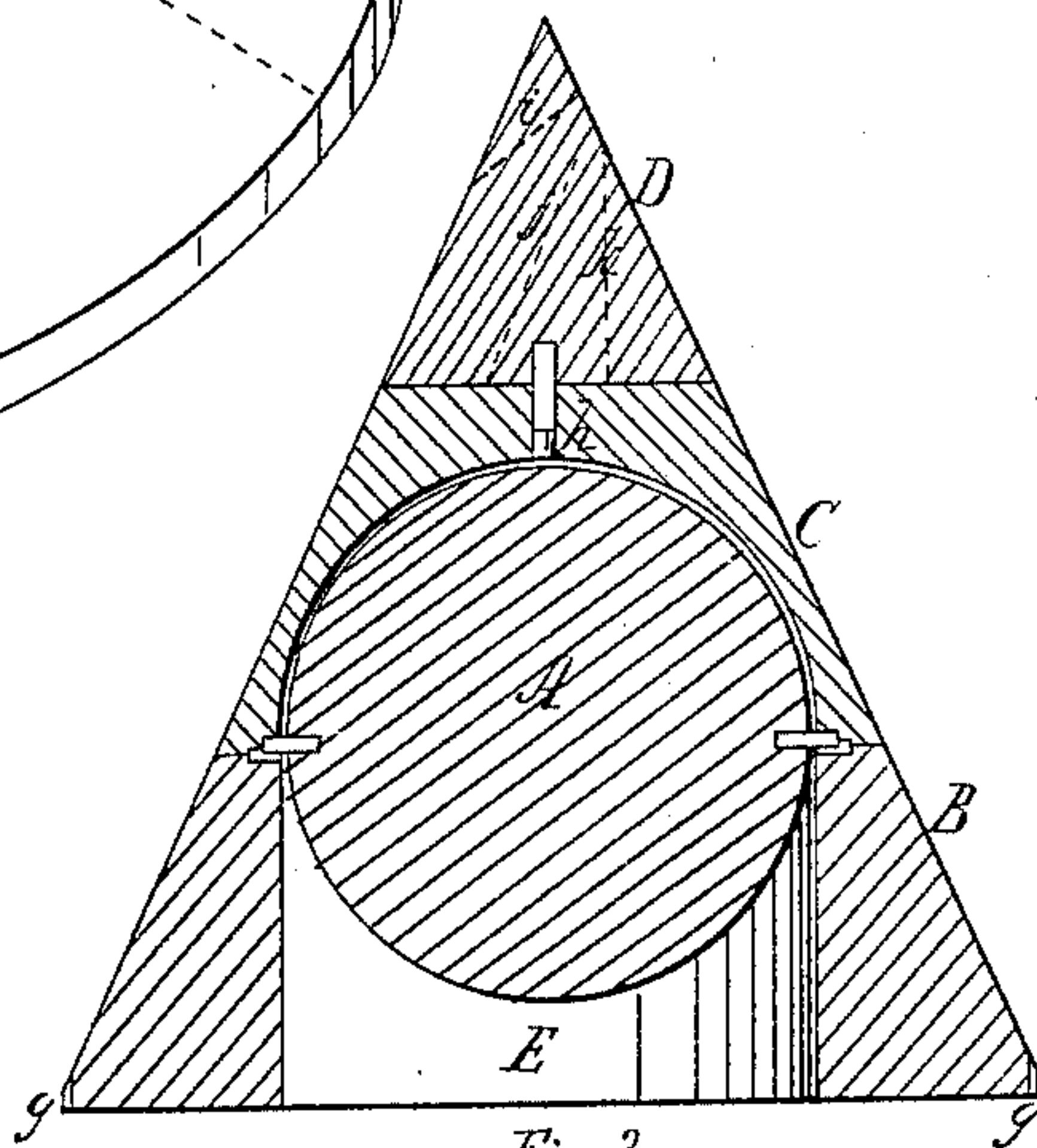
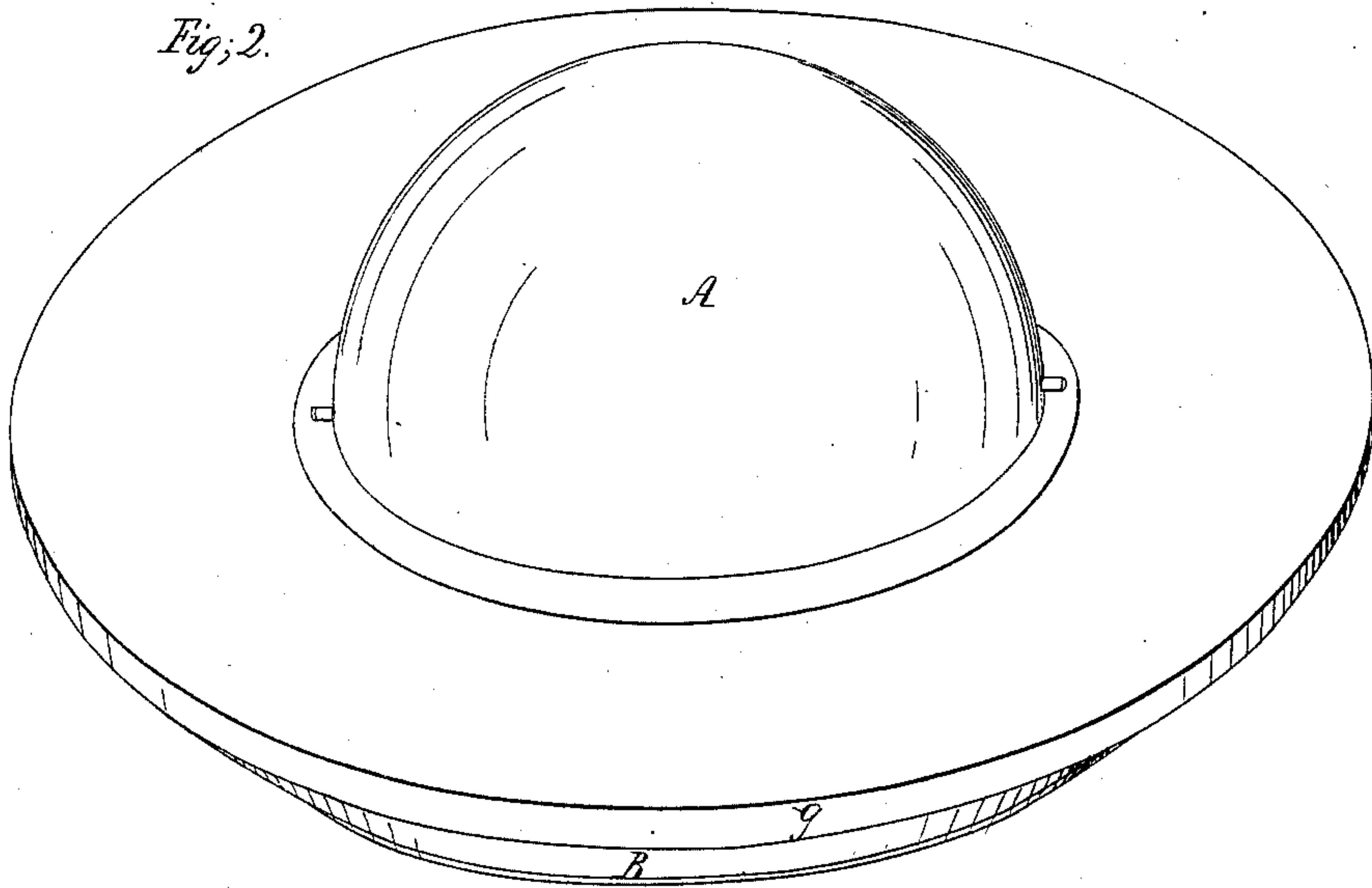


Fig. 3.

Fig. 2.



UNITED STATES PATENT OFFICE.

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APPARATUS FOR ILLUSTRATING CONIC SECTIONS AND THE LINES OF THE GLOBE.

Specification of Letters Patent No. 18,931, dated December 22, 1857.

To all whom it may concern:

Be it known that I, FORREST SHEPHERD, of the city and county of New Haven, in the State of Connecticut, have invented a new and useful Improvement in Globes for Schools, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1, is a perspective view of the globe, when mounted on the upper part of the frustum of a hollow cone. Fig. 2, is a perspective view of the globe when mounted on the base of the cone. Fig. 3, is a section of the hollow cone, and globe, cut vertically through the center, showing the segments into which the cone is cut.

My improvement consists in mounting the globe with an extended tubular horizon, and movable graduated meridians made of materials, transparent, translucent, or opaque, capable of being written on with a pencil, and of having the writing, or work easily wiped, or rubbed, off, and connecting with the globe a surface, divided into zones, &c., capable of being written upon with a pencil, and of having the writing easily wiped, or rubbed, off, and in having the hollow cone so constructed that the pole of the globe may be elevated so as to mark the visible horizon for any latitude, or to mark the ecliptic, and, when resting in a horizontal position, to mark the meridians; all by holding the globe steady in its position, and drawing the pencil around on the edge of the extended horizon, and in that the pencil may rest on the proper point of that horizon, and the globe be revolved, to draw the equator, and all circles parallel to it, and in having the upper segment of the cone cut into conic sections for the purpose of illustrating the ellipse, the parabola, and the hyperbola.

I make the globe, A, Figs. 1, 2, and 3, of wood, or any other suitable material, and coat its surface, (if necessary,) with a covering on which I can write with a pencil, and easily wipe, or rub, it off when the surface is wanted for other work or exercise, (as from a slate). On this globe I have one, or more, flat graduated metallic meridians, as seen at *b*, Fig. 1, suited, in width, to 15°, (or otherwise,) and, if thought necessary, I also put on other meridians of strips of any flexible substance, on which I can write with

a pencil and easily wipe, or rub, it off, when it is no longer needed. I make the cone in three segments, as shown, in section, at B, C, and D, Fig. 3, and at the top of the lower segment or frustum, B, I fit a graduated circle, or horizon, *a*, to show the latitude, &c., and I divide the convex surface of the segment B, into zones, as indicated by the red lines, *c*, *d*, *e*, *f*, in Fig. 1, and I bind it around the bottom, to keep it from splitting, &c., as seen at *g*, Figs. 1, 2, and 3, and I cover the convex surface, for the purpose of writing with a pencil, as described for the globe. I also fit the base of the hollow cone to receive the globe, A, as seen in Fig. 2, when the zones, &c., may be marked upon its flat surface, and the surface prepared for writing with a pencil and wiping, or rubbing, off, the same as the globe, or a more extended tablet may be used, (as a slate, &c.,) instead of the base, or surface of the cone. I make the middle segment, C, partially hollow, to receive one half of the globe, as shown in Fig. 3, (so that it forms a cover for it,) and in the upper part of this concave space I make a groove, shown in cross section, at *h*, Fig. 3. In one direction, this groove is sufficient in extent, (when the pole of the globe is inserted into it,) to allow the axis of the globe to be inclined to correspond with the latitude of the place, for the purpose of marking the visible horizon, and the constellations, &c., and, in other direction, the exact distance to mark the ecliptic. I make the superior segment, D, of a solid piece, and cut it into sections to illustrate the principles of the ellipse, the parabola, and the hyperbola, as indicated by the red lines, *i*, *j*, and *k*.

To use the globe for marking the equator, zones, and other parallels, I place it within the graduated circle, or horizon, *a*, as shown in Fig. 1, apply the point of the pencil, at the proper latitude, and give the globe a complete revolution, and the circle will be formed complete and exact.

To draw meridians, I hold the globe steady in its position, apply the point of the pencil at one pole, and draw it to the other (all the time resting on the horizon). I then turn the globe till the meridian already drawn is exactly on the top, and draw another, and then subdivide; or, I space the meridians by the graduated metallic meridian, *b*, Fig. 1; or, by any other convenient means.

To draw the elliptic, I place one of the poles of the globe in the groove, *h*, Fig. 2, in the concave of the segment, *C* in that portion where the groove is exactly the length, and draw the pencil (resting on the circle) around it.

To draw the visible horizon, I place the pole of the globe in the other portion of the groove, *h*, and incline the axis to the latitude of the place, and draw the pencil around the globe, as before described, which fits the globe for drawing the constellations, &c.

Thus, with the globe, extended horizon, or surface, meridian, groove, and zones, I am able to delineate the parallels, meridians, ecliptic, visible horizon, and constellations; and the animals, plants, and minerals, common to each of the zones, and for mathematical studies, I have the (hollow) cylinder, sphere, and cone; the circle and the conic sections.

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

1. The combination of the globe with an extended horizon or surface, as the base, or convex surface, of the cone, or any other extended surface, on which may be written any geographical or other exercise with the globe, and be easily wiped, or rubbed off, when constructed, arranged, and combined, substantially, as herein described.

2. I claim the combination of the globe with the cone, when the cone is made in three or more segments, and the upper segment so cut as to illustrate the conic sections, and the whole is constructed, arranged, and rendered susceptible of the various uses, as herein described and set forth.

FORREST SHEPHERD.

Witnesses:

G. R. SHEPHERD,
R. FITZGERALD.