May 10, 1932. M. A. HIRSCHL 1,857,546

CELESTIAL GLOBE

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Fig. 1.

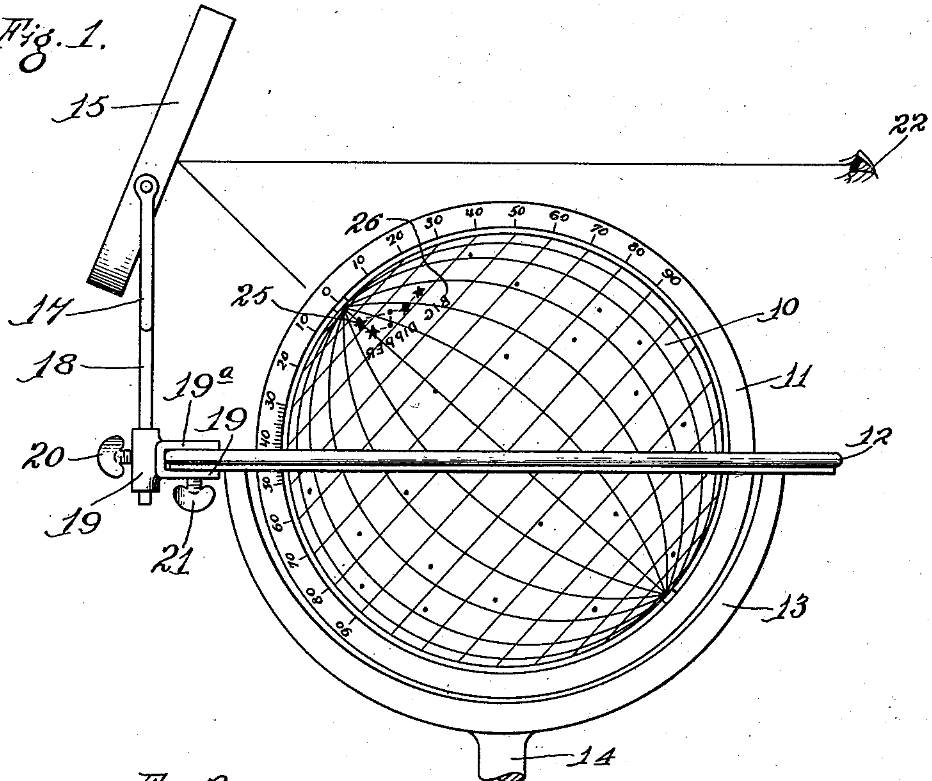

Fig. 2.

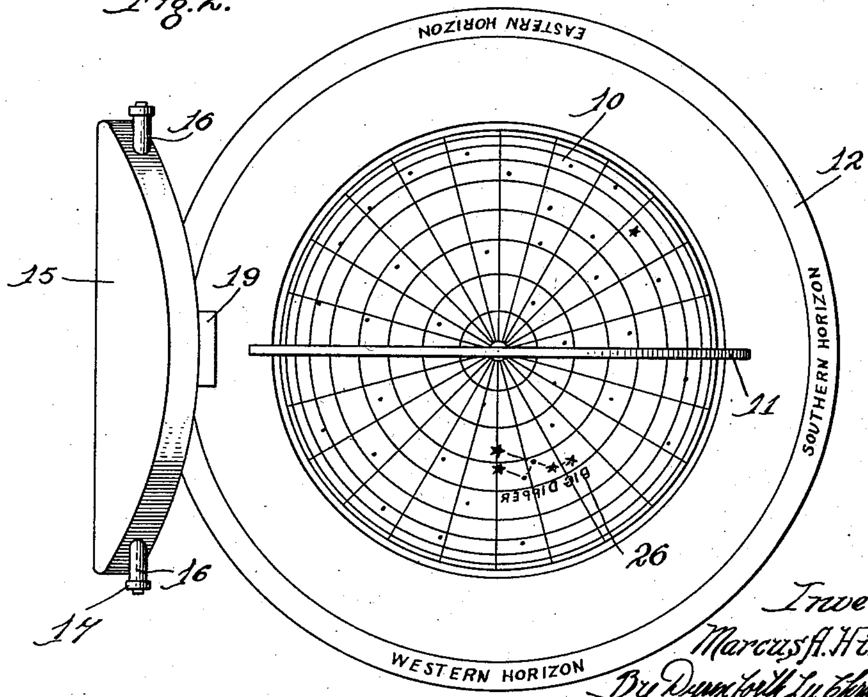

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Fig. 3.

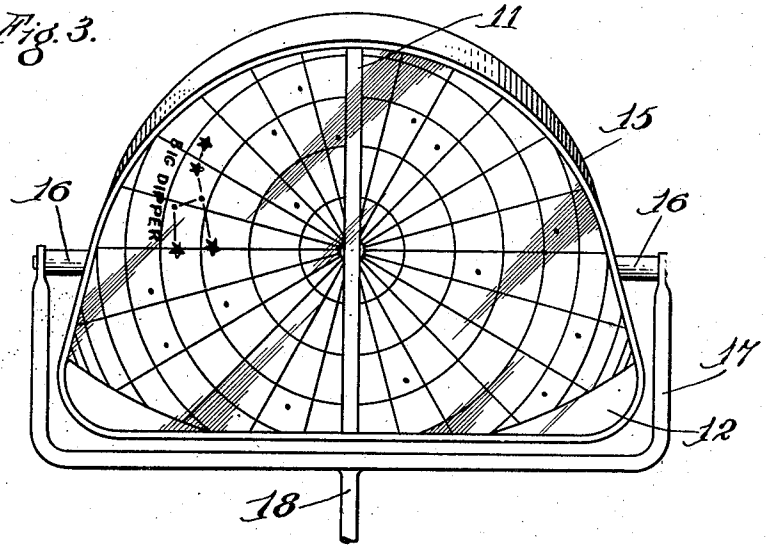


Fig. 4.

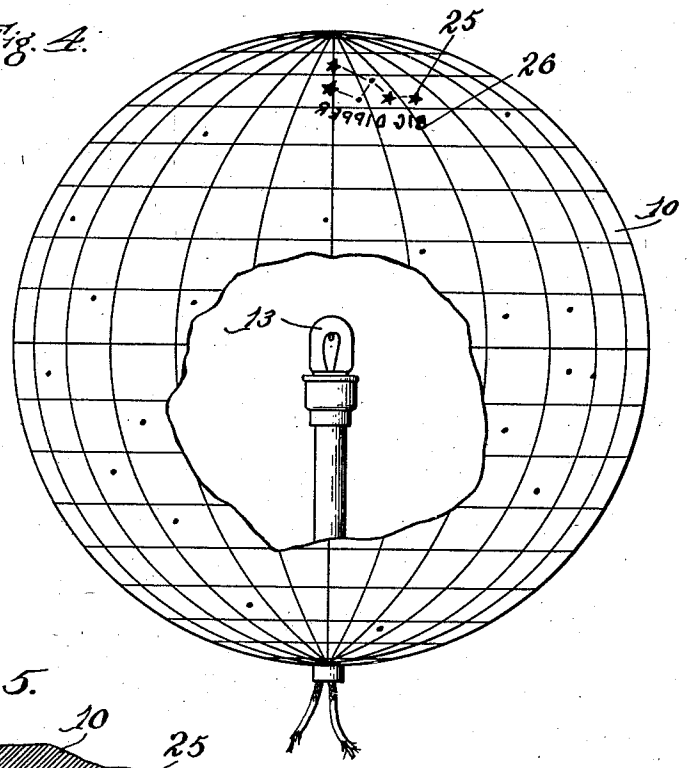
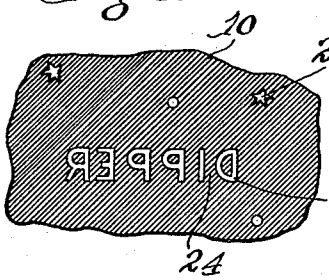


Fig. 5.



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Patented May 10, 1932 1,857,546

UNITED STATES PATENT OFFICE

MARCUS A. HIRSCHL, OF CHICAGO, ILLINOIS

CELESTIAL GLOBE

Application filed May 7, 1931. Serial No. 535,756.

This invention relates to improvements in celestial globes. The invention is applicable in combination with practically any kind of celestial globe and may either be permanently incorporated with a globe or used as an attachment for existing or new globes.

Celestial globes of the character referred to ordinarily show stars, planets, names, constellations and the like, on the same as they are arranged in the heavens, that is, as if seen from outside the celestial sphere. When these are viewed, however, on the globe itself, they appear in a reverse position from that in which seen in the heavens. My invention contemplates the use or arrangement of a mirror in proximity to such a globe so that portions of the globe, or the globe in its entirety can be viewed in the mirror and the stars, constellations, and the like, seen in their correct positions.

Other features and advantages of my invention will appear more fully as I proceed with my specification.

In that form of device embodying the features of my invention shown in the accompanying drawings—

Figure 1 is a view in side elevation; Fig. 2 is a top plan view; Fig. 3 is an enlarged view of the image seen in the mirror when viewed as shown in Fig. 1; Fig. 4 is an enlarged detail view showing a method of illuminating the globe; and Fig. 5 is a detail view of the lettering and the like that can be employed.

As shown in the drawings, 10 indicates a celestial globe rotatably mounted in the meridian ring 11 which, in turn, is rotatably supported in the horizon ring 12, the latter being carried by a suitable curved support 13 on top of a standard 14.

Numeral 15 indicates a mirror, here shown as substantially semi-circular in shape, carried by the trunnions 16 on the supporting fork 17, the lower end of which, as indicated by 18, is adjustably mounted in the clamp 19. Numeral 20 indicates a thumb screw to hold the rod 18 in any desired position. The clamp 19 is provided with a pair of jaws 19ª adapted to embrace the horizon ring 12 and 21 indicates a thumb screw for holding the clamp 19 in any desired position on the horizon ring 12.

In the form shown, the horizon ring may bear the lettering, "Eastern horizon", "Southern horizon", and so forth.

In the practice of the invention, the globe may be turned in its mounting until it is in the correct position considering the place on the earth occupied by the observer, the season, the time of day or night, and so forth. For example, the sphere may be turned so that the North Pole points to the celestial North Pole in the vicinity of the north star. The globe may also be rotated on its axis until it is in the correct position considering the time of day or night. The mirror 15 may then be set at any horizon desired. For example, if it is desired to view the stars as they appear when looking toward the north, the mirror will be set as shown in Figs. 1 and 2, the eye of the observer being indicated by 22. This will give an image in the mirror substantially as shown in Fig. 3 which will be, to a certain extent, as the stars appear at that time and place as viewed in the heavens looking toward the north. When thus viewed, it will be seen that the globe can be rotated on its axis which will show the movement of the stars as they actually occur in the heavens. Obviously, any other horizon may be similarly viewed. For example, the mirror 15 could be set at the western horizon to show the appearance of the stars when looking westerly. When thus viewed, also, the globe can be rotated on its axis and the stars will enter the field of vision in the mirror at the top and leave at the bottom, thus simulating the setting of stars in the west.

I suggest the printing of names, wording, and the like, for example, the names of constellations like the "Big Dipper" with the letters arranged backwards so that when viewed in the mirror, the names will appear correct.

If desired, the globe may be adapted for use in the dark by illuminating the interior of the same, as shown in Fig. 4, with an electric light 23. In this case, the surface of the globe may be preferably formed of opaque material, as indicated by 24 in Fig. 5, in

which case, the stars, as indicated by 25, and the lettering, as indicated by 26, would be open or formed of some translucent or transparent material transmitting light so that the stars, wording, and so forth, will be visible by contrast with the surrounding opaque material 24.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of my invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. A celestial globe having constellations shown thereon as if seen from outside the celestial sphere; a mounting for said globe; and a mirror supported from the mounting in a position to allow the image of a portion of the globe to be seen in the mirror, whereby constellations shown on said portion of the globe may be seen in the mirror as if looked at from inside the celestial sphere.

2. A device as claimed in claim 1 with means for supporting the mirror in different positions to permit different portions of the globe to be seen therein.

3. A device as claimed in claim 1 in which the mounting for the globe includes an horizon ring, and in which the mirror is supported from said ring.

4. A device as claimed in claim 1 in which the mounting for the globe includes an horizon ring and in which the mirror is detachably supported from said ring and adapted to be supported from said ring in different locations thereon.

5. A device as claimed in claim 1 in which the globe has the names of constellations thereon printed backwards.

6. A device as claimed in claim 1 in which the globe is hollow and provided with an opaque space having stars indicated thereon by light transmitting portions, said globe being illuminated from the interior.

In witness whereof I have hereunto set my hand, this 4th day of May, 1931.

MARCUS A. HIRSCHL.