(No Model.)

W. S. THAXTER.

AZIMUTH ATTACHMENT TO COMPASSES.

No. 327,351. Patented Sept. 29, 1885.

Fig. 1.

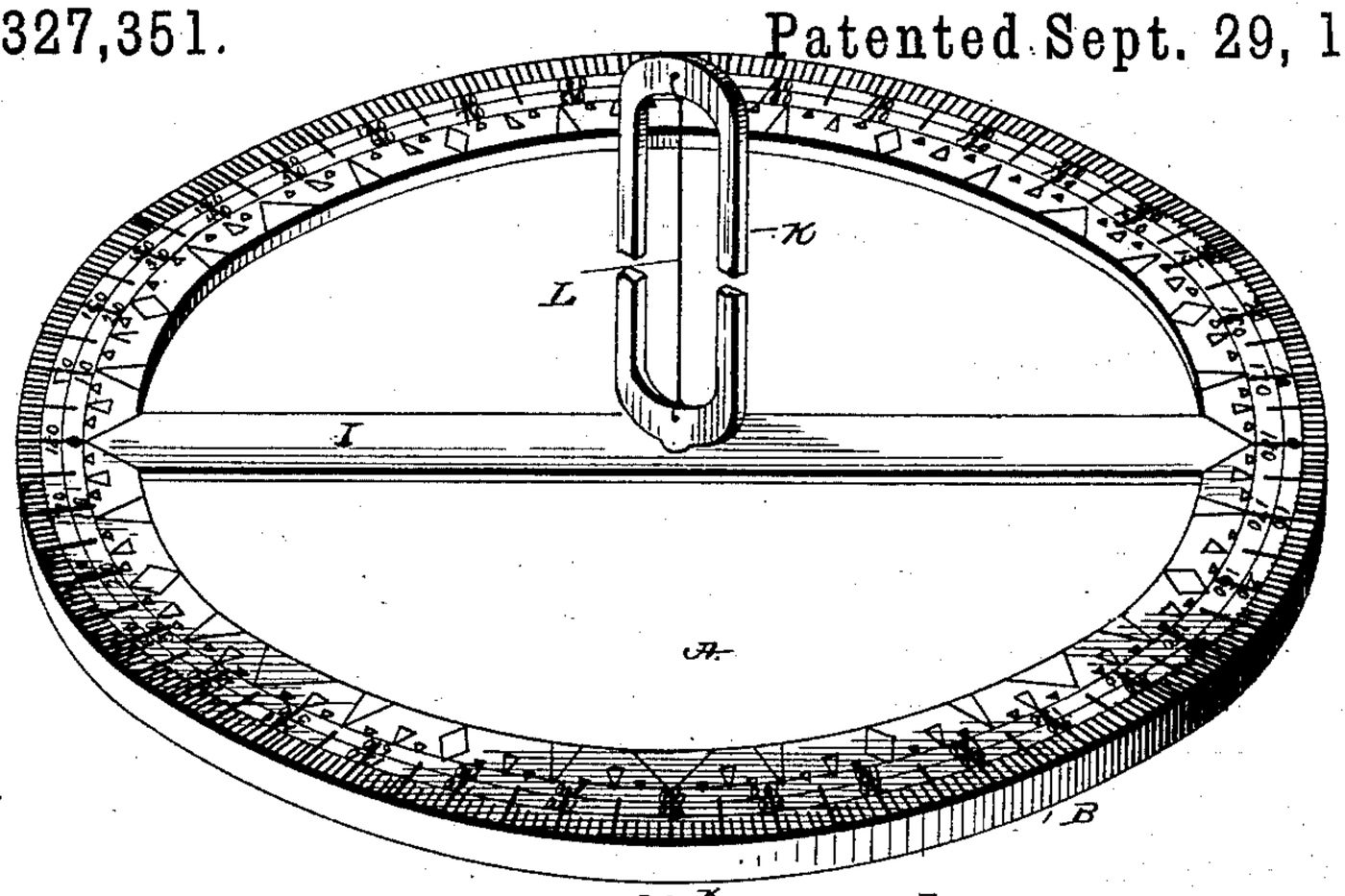


Fig. 2.

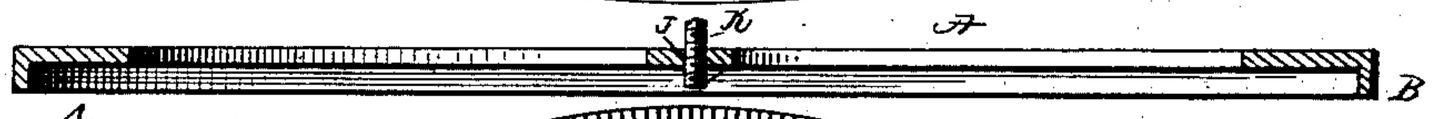
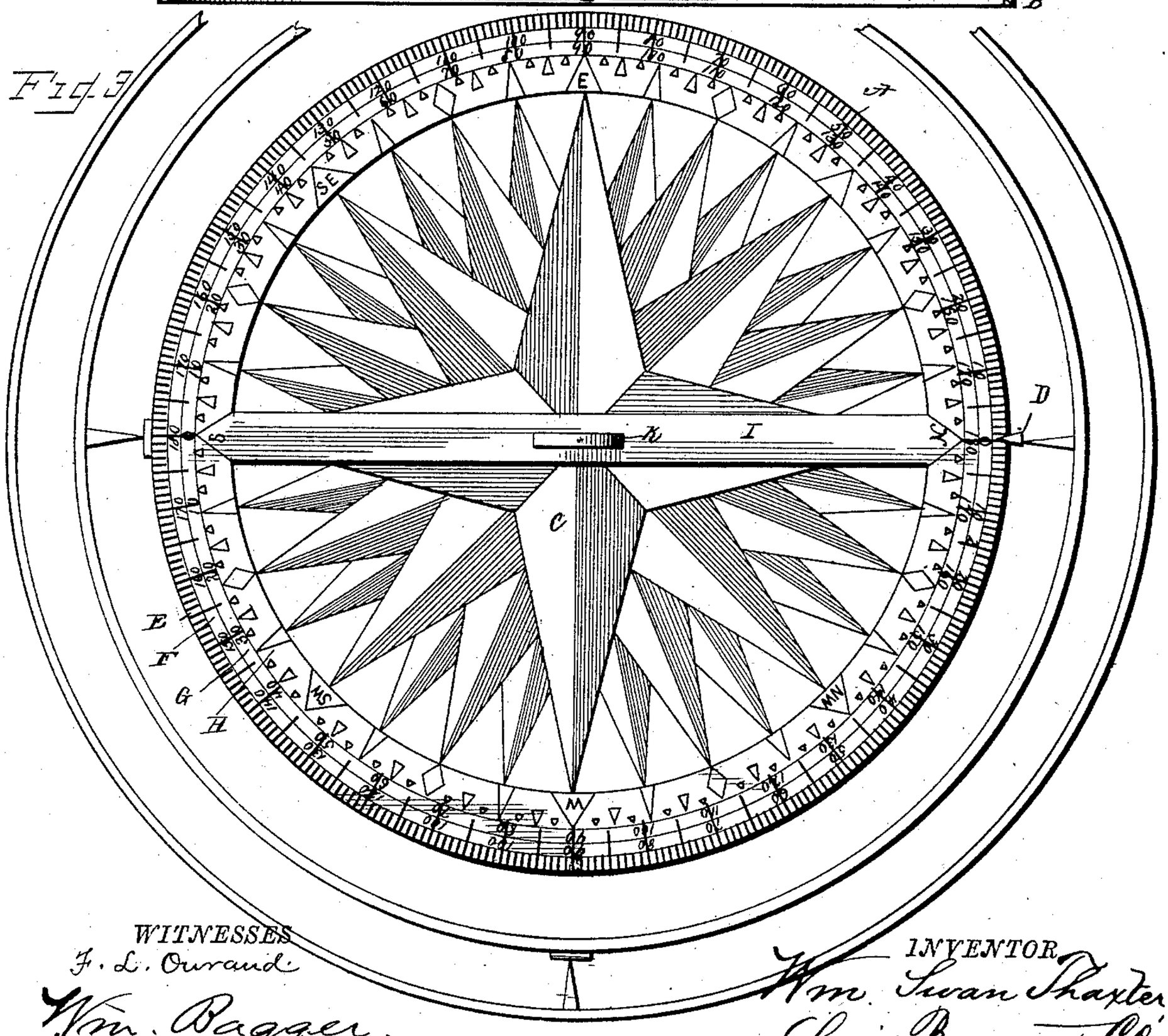


Fig. 3.



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UNITED STATES PATENT OFFICE.

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AZIMUTH ATTACHMENT TO COMPASSES.

SPECIFICATION forming part of Letters Patent No. 327,351, dated September 29, 1885.

Application filed May 23, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SWAN THAXTER, a citzen of the United States, and a resident of Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Azimuth Attachments to Compasses; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved azimuth attachment for mariners' compasses. Fig. 2 is a vertical transverse sectional view of the same, and Fig. 3 is a plan view showing the attachment applied to a compass in position for operation.

The same letters refer to the same parts in all the figures.

This invention relates to an improved azimuth attachment for mariners' compasses; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, inexpensiveness, and general efficiency, and which may be easily applied and manipulated.

The invention consists in the improved construction and arrangement of the said attachment, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, A designates a flat annular ring, which may be constructed of any suitable non-magnetic material, sheet-nickel or nickel-plated sheet metal being preferred, for the reason that it will show the shadow cast by the shadow-vein more clearly than other materials of equal durability. The said ring is provided at its outer edge with an annular downwardly-extending flange, B, adapted to fit over the upper rim or edge of an ordinary mariner's compass, C, to which the device may in this manner be applied. The upper side of this ring is laid off with concentric spaces E, F, G, and H, in the outer one of which, E, are spaces marked, indicating degrees of the circle, as shown. In the next adjoining space, F, the degrees are numbered from zero to 180°, running right and left from north to south. In the next space the degrees are again numbered from zero to 180°, but from south to north. In the fourth space, H, the points of the compass are marked as shown. It will be noticed that the points are marked or named in an opposite direction on the card from what they are on the face of a compass, except the north and south points, which are the same. The object of this reverse pointing is to enable the ship's course to be told from the point where the shadow of the spindle crosses the circle-line, as it actually appears.

The ring A is provided with a transverse bar, I, which has a central bearing, J, for the detachable shadow-vein K, which shall be so constructed and placed that the shadow-string L will register with the center of the ring. When it is desired, the vein K can be removed and a common sight-vein be put in its place, which can be used to take the sun's bearing in cloudy weather, or used as an alidade to take the bearings of objects by reading the card reversely; but I make no claim to this latter.

At the forward bearings of the compass is secured a hand or pointer, D, which comes up and projects slightly over the degree line or circle of the card. This pointer is so arranged that it indicates the lubber-line or ship's head, and enables any degree of the circle to be placed on the ship's head.

The operation of this invention is as follows: The true azimuth of the sun as determined from the table prepared for that purpose, or a degree on the card representing such azimuth, is placed on the ship's head by placing it under the pointer D at the forward bearings of the compass. On northerly courses in north latitudes the "south" point of the card is set to the west, as the card is marked, in the forenoon until the degree indicating the sun's true azimuth is directly under the pointer D. The point where the shadow of the shadow-string crosses the circle will indicate the course the ship is making through the water. In the afternoon the "south" point of the card is set to the east. On southerly courses in north latitudes the "north" point of the card is set to the east in the forenoon and to the west in the afternoon, care being always taken to set and read the card as it is marked, and always take and read the degree that is less than ninety degrees. In south latitudes the above directions for setting the card are to be reversed.

When it is desired to find the deviation of the compass, the true variation of the needle for that locality is determined by tables prepared for that purpose, and the true azimuth of the sun set accordingly by the card, and the ship is then "swung," as is commonly done. The number of degrees that the shadow of the shadow-string falls off the compass-course of the ship will be the true deviation of the compass east or west, as the case may be.

From the foregoing description, in connection with the drawings, it will be seen that my device is simple and effective, and that by its use the desired result can be arrived at with less trouble than formerly. As the device is to be used only in clear weather, when the sun is shining the shadow of the shadow-string crosses the degree-line of the card some place, thus enabling one man to keep the ship on her course and take the shadow at the same time. If the ship is rolling, he can take the shadow at the instant that she is upright without the difficulty and uncertainty of sighting the sun. There is no need of figuring out the ship's course, as must be done with the instruments now in use, as it is indicated by the shadow on the face of the card.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an attachment for compasses, a flanged azimuth circle or card having the degrees of a circle and the points of the compass marked on its face, said points of the compass, except the north and south points, being marked opposite to the regular compass, in combination with suitable means for taking the course of the ship, substantially as and for the purpose set forth.

2. In an attachment for compasses, a flanged azimuth circle or card having four concentric circles upon its face, one of which circles is marked to indicate the degrees of a circle, two of the other circles are numbered from zero to 180°, in one of said two circles the numbers run east and west from north to south, and in the other one they run from south to north, and the fourth circle is provided with the points of the compass, said points of the compass, except the north and south points, being marked opposite to a regular compass, in combination with suitable means for taking the course of the ship, substantially as and for the purpose set forth.

3. In an attachment for compasses, the combination of a flanged azimuth circle or card having four concentric circles upon its face, said circles being provided with the degrees, numbers, and points of the compass, arranged as above described, and provided with a transverse bar across its center, said bar being provided with a bearing at its center, and a detachable shadow-vein secured in said bearing, substantially as and for the purpose set forth.

4. The combination, with the above-described azimuth circle or card and shadow-vein, of a pointer secured to the forward bearing of the compass, said pointer coming above and over the degree-line of said circle or card and indicating the ship's head, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WM. SWAN THAXTER.

Witnesses:

JOHN E. HAMILL,

G. A. LOVE.