(No Model.)

R. L. SLEATER.

MARINER'S COMPASS.

No. 320,823. Patented June 23, 1885.

Fig. 1.

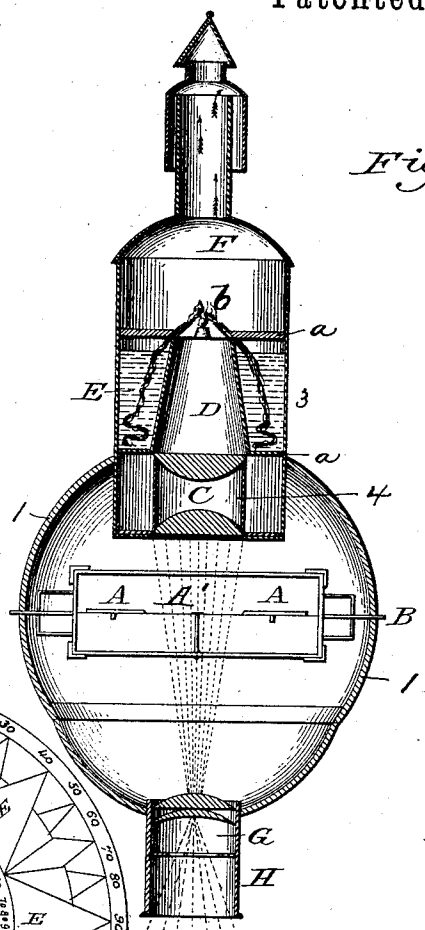
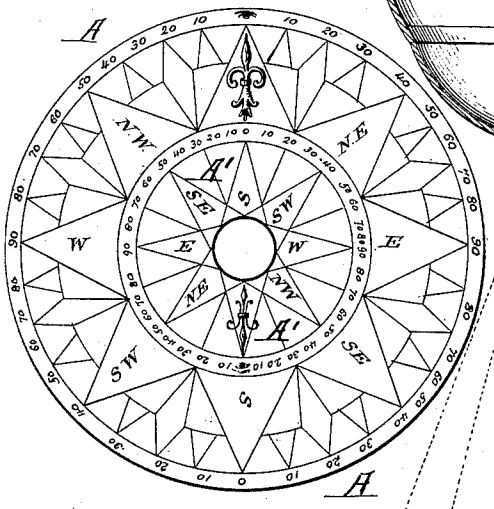


Fig. 2.



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UNITED STATES PATENT OFFICE.

ROBERT LEWIS SLEATER, OF ST. JOHN'S, NEWFOUNDLAND.

MARINER'S COMPASS.

SPECIFICATION forming part of Letters Patent No. 320,823, dated June 23, 1885.

Application filed March 19, 1885. (No model.) Patented in England October 23, 1884, No. 14,060.

To all whom it may concern:

Be it known that I, ROBERT LEWIS SLEATER, of St. John's, in the Island of Newfoundland, watch-maker and optician, have invented certain new and useful Improvements in Mariners' Compasses, of which the following is a full, clear, and exact specification.

The object of this invention is to provide a mariner's compass in which the image upon the compass-card may be reflected or projected upon any suitable surface or object at a distance from the compass and be read without difficulty.

In the drawings, Figure 1 represents a central vertical section of an apparatus embodying my improvements, and Fig. 2 a plan view of a compass-card used in connection therewith.

In said drawings, 1 designates a spherical casing, within which is contained a frame carrying the magnetic needle and compass-card, said frame being mounted on the ordinary gimbals, B. At the upper portion of the said casing is secured a cylinder, 3, provided with diaphragms *a a*, and having a central tapering reflecting-cylinder, D.

The space between the diaphragms *a a* and cylinders D and 3 forms a receptacle for the oil E, which is supplied to a wick or wicks, *b*, which extend from the oil-receptacle up above the top of cylinder D. The latter is silvered upon its interior for the purpose of throwing the light from the wicks down upon the compass-card A. The wick may be a single one of circular form, or may consist of a series of wicks slightly rounded to a cylindrical form. In the lower portion of cylinder 3 is secured an inner concentric cylinder, 4, within which are the condensers C, which may consist of one or more plano-convex lenses. In the lower portion of the casing 1 is secured a short cylindrical tube, in the upper portion of which are secured the objectives G, consisting of single or double achromatic lenses of different focal lengths, thus allowing the image upon the compass-card to be projected to various distances, such as the mast-head, bridge-binnacle, or through frosted or muffled glass inserted in the deck. When used in the last-mentioned way, the reflection may be obtained with equal clearness from either side.

H is an ordinary camera stop or diaphragm.

I I represent the reflection, which may be increased from one foot to thirty feet, or to any size desired. By the use of prisms, mirrors, &c., the reflection may be thrown at any angle.

In Fig. 2 is shown the compass-card used in connection with the apparatus above described. It is composed of two sets or series of notations and points, the points of the outer series, A, being marked in the ordinary manner, while those of inner series, A′, are marked reversely thereto, the image on the inner series only being reflected. By arranging the points on the inner or reflected series reversely the image when reflected or projected will appear correct. The outer series of points and notations, however, may be dispensed with, and the inner series alone be used.

It will be obvious that the portion of the card containing the points A′ of the card must be of some transparent material—such as mica, glass, horn, ivory, gelatine, celluloid, or other light non-magnetic material—and the points and notations may be painted, perforated, colored, or photographed thereon in any convenient or desirable manner.

From the above it will be seen that, the wicks *b* being lighted, the light therefrom will be reflected by cylinder D upon the condensers C, and from thence to the compass-card and achromatic lens or objectives G, by which the image on the card is projected upon any suitable surface.

Having thus described my invention, what I claim is—

1. In a mariner's compass, the combination, with a surrounding casing and condensing and achromatic lenses, of a transparent compass-card having two sets or series of notations and points thereon, the points of the outer series being marked in the ordinary manner, while the points of the inner series are marked in reverse order thereto, substantially as described.

2. In a mariner's compass, the combination, with a surrounding casing and condensing and achromatic lenses, of a transparent compass-card the points of which are marked in reverse order, so that the reflected image will appear correct, substantially as described.

3. The combination, with the casing 1, of the cylinder 3, diaphragms *a a*, chimney F, and reflecting-cylinder D, the space intermediate

of said diaphragms and cylinders D and 3 serving as an oil chamber or receptacle, substantially as described.

4. The combination, with the casing 1, cylinder 3, having chimney F and diaphragms *a a* and reflecting-cylinder D, of the inner concentric cylinder, 4, provided with the condensing-lenses C, substantially as described.

5. The combination, with the casing 1, cylinder 3, reflecting-cylinder D, and condensing-lenses C, of the achromatic lens G, for reflecting or projecting the image from the transparent compass-card, substantially as described.

In testimony whereof I have hereto set my hand this 20th day of February, 1885.

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