2 Sheets—Sheet 1.

G. W. WOOD.

Ship's Compass.

No. 112,999. Patented March 21, 1871.

Fig. 1.

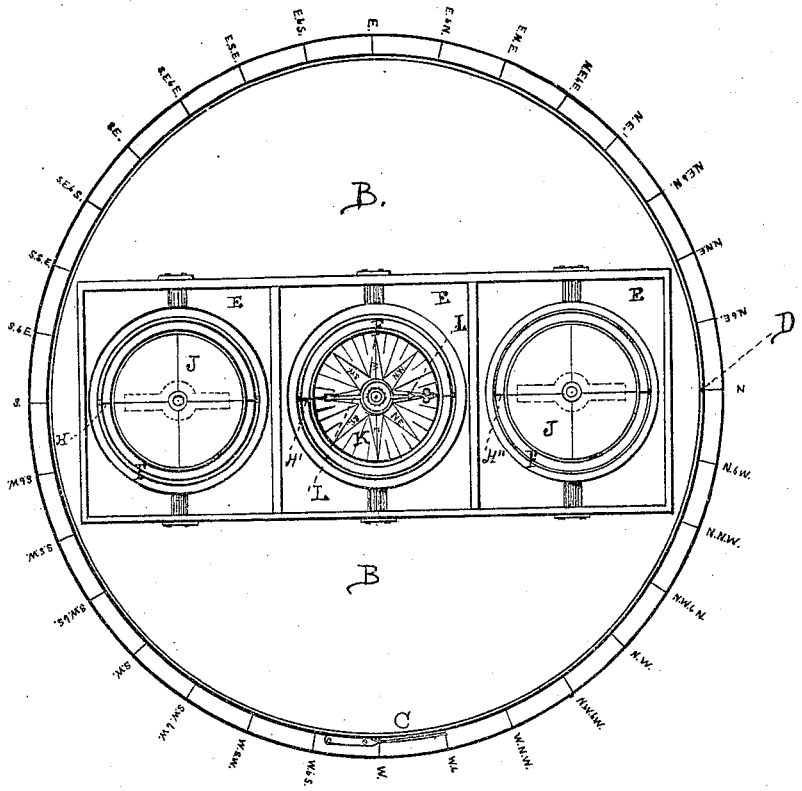
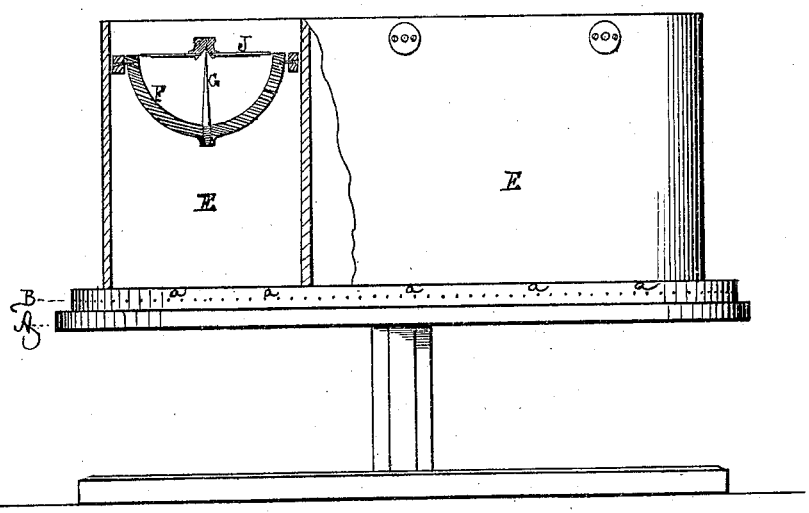


Fig. 2.



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2 Sheets—Sheet 2.

G. W. WOOD.

Ship's Compass.

No. 112,999. Patented March 21, 1871.

Fig. 3.

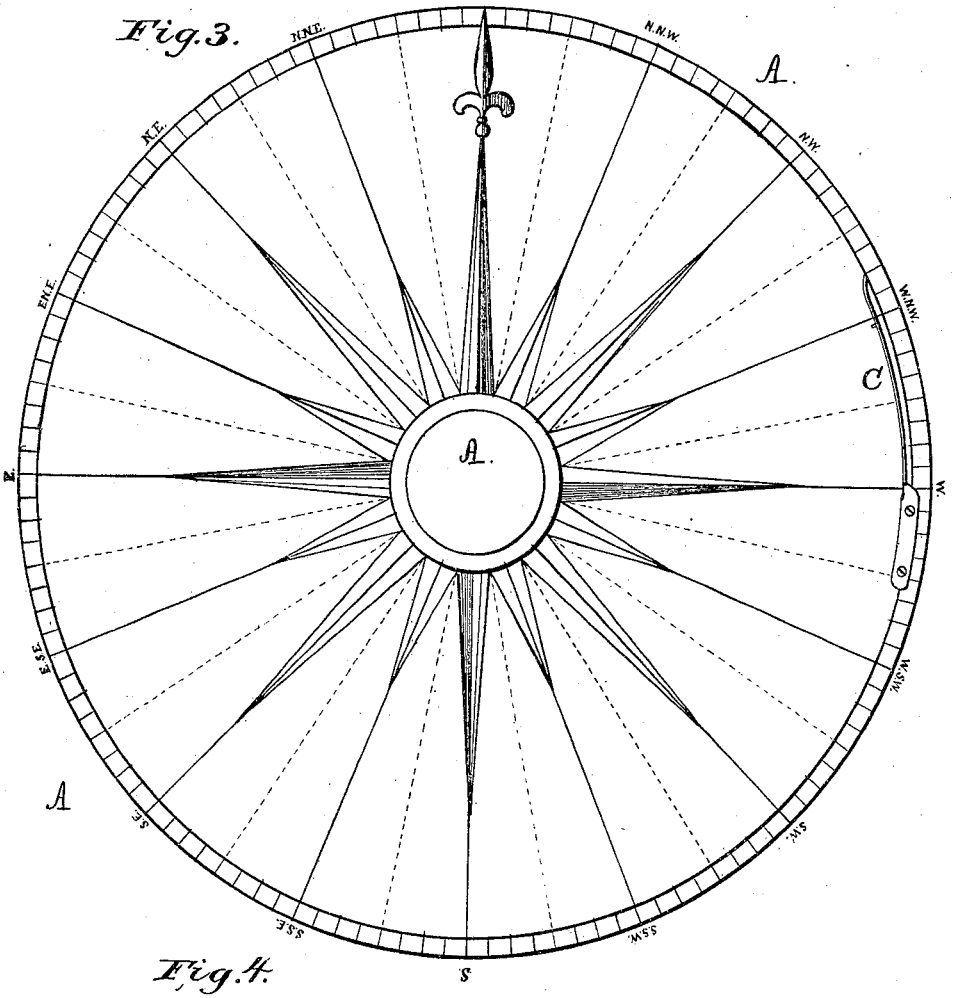


Fig. 4.

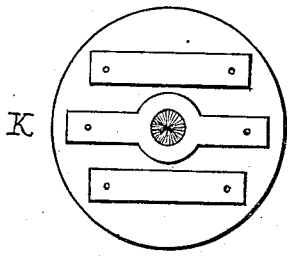
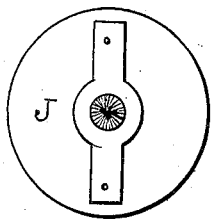


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. WOOD, OF BROOKLYN, NEW YORK, ASSIGNOR TO MARION A. WOOD, OF SAME PLACE.

IMPROVEMENT IN SHIPS' COMPASSES.

Specification forming part of Letters Patent No. **112,999**, dated March 21, 1871.

To all whom it may concern:

Be it known that I, GEORGE W. WOOD, of Brooklyn, in the county of Kings and State of New York, have made new and useful Improvements in Ships' Compasses; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a top view of the device illustrating my invention. Fig. 2 is a side elevation thereof, partly in section. Figs. 3, 4, and 5 are views of detached parts.

Similar letters of reference indicate corresponding parts in the several figures.

My invention is a combination standard compass for the use of ships; and consists of an arrangement of needles, by which the magnetism of the ship is neutralized; also, in the construction of the compass-stand with movable and stationary disks, the stationary disk being marked the same as a compass-card, but lettered in reverse order; also, in a pointer, intended to facilitate the bringing to bear of any given degree of the card upon the lubber's mark of the compass-bowl; finally, in the opposite poles of the needles being brought close to each other, so that their magnetism may be maintained indefinitely.

Referring to the drawing, A represents a disk or plate, constructed of wood, metal, or other suitable substance, and mounted upon a stand or support in any well-known manner. On the face of said disk there are placed or marked the points of the compass N, NW, NE, &c., but it will be observed that the letters are placed oppositely to what they are placed on the compass-card, with the exception of the North and South points, which are the same as on the compass-card. Thus, if a compass-card be placed on the disk so that the North and South points of both will coincide, then the NE point of the card will coincide with the NW point of the disk, the E point of the card with the W point of the disk, and so on.

The disk is divided into points and subdivided into quarter-points in the same manner as is a compass-card, with the difference in lettering, as above stated.

On the aforementioned disk A there is mounted a disk, B, which revolves on the former, a suitable socket and pivot being provided to form the fulcrum of said disk B.

A series of openings, notches, or holes, *a a*, is formed in the periphery of the disk B, of which there are one hundred and twenty-eight, (128,) to coincide with the points and quarter-points of the compass.

A spring-catch, C, is secured to the disk A, and adapted to engage with the openings *a a*, in order to secure the disk B in any desired position.

D represents a score on the disk B, for facilitating the turning of said disk from any point on disk A to any other point thereof. For example, if the score D coincides with the North point on disk A, and it is desired to turn the disk B four points, this will be accomplished by bringing the score to coincide with the NE point or the NW point on the disk A.

The openings *a a* coincide with the points and quarter-points on the disk A.

On the disk B, I arrange the compass-boxes E, and have attached in the ordinary manner the compass-bowls F, which boxes and bowls are of usual form and construction.

The pivots G in the bowls are in line with each other, as are also the lubber marks H H′ H″ on the bowls.

The boxes must be placed so that the pivot of the middle bowl will be directly over the center of the disk A B, and so that the lubber's marks of the bowls will be in the same line with the score D on the disk B.

J J K represent the compass-cards. The cards J J have only one needle each, but are not graduated, as the cards are merely intended to steady the needles. The card K must have three or four needles, and be graduated to degrees. It is likewise provided with an index or pointer, L.

The compass-stand is intended to be placed so that its North and South points will coincide with the ship's keel, but with the North point toward the ship's head.

The pointer L must always be placed as many degrees from the North point of the

card as there are degrees in the magnetic variation—to the eastward of the needle if the variation is westerly, but to the westward of the needle if the variation is easterly.

If, now, there is one point of westerly variation, and the local deviation is anything whatever, and it is desired to place the ship's head true North, proceed as follows: Place the score D on the North point of the disk A; place the pointer L on the N-by-E point of the middle card, and turn the ship's head until the pointer points directly to the lubber's mark H′. The ship will then head true North. If it is desired to head her NE, true under similar circumstances, turn the disk B until the score D coincides with the NE point on the disk A; then turn the ship to the eastward until the pointer L points as before. The ship's head will then be true NE. In the same manner she may be pointed on any true course, the arrangement of the needle neutralizing in all cases the magnetism of the ship. This compass is not intended for steering purposes, but merely to place a ship on her true course, or to find the true course which she is steering. This is accomplished by turning the disk B until the pointer of the middle card corresponds with the lubber's marks, as before. The point on the disk A which corresponds to the score D will be the true course the ship is steering.

The compass-cards may be of any size. They should not be farther apart than four inches, nor nearer than one inch to each other. The distances apart will vary according to the size of the cards.

Compass-needles are liable to lose their polarity, either partly or entirely, in the course of a few years. If similar poles of a magnet be brought together or near each other, they will, in the course of time, demagnetize each other; but if the opposite poles of magnets are brought together or near each other, they will increase each other's power. In the case of magnetic needles they increase each other's magnetic power. In other words, they increase each other's directive power, and if kept together or near each other their directive power may be maintained indefinitely, whereas the ordinary needle, as ordinarily used, will in time lose its directive power either in part or entirely.

By this invention I am enabled to obviate the necessity of swinging ship before going to sea; to render unnecessary the taking of compass observations at sea, which is often difficult, if not at times impossible, and also to avoid the possibility of making mistakes in applying the magnetic variation and total deviation in order to find the true course which a ship has been making.

Lubber's marks are not required on each of the three bowls; but having them in case of need, each bowl could be used for a separate compass. If it were necessary to find compasses for several boats—for instance, as in the case of shipwreck—my compass as at present arranged could be turned into three compasses.

The middle compass may be fitted as an azimuth compass for taking bearings. All bearings taken by it will be true magnetic.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the needles J J K, by which the magnetism of the ship is neutralized, in the manner and for the purpose set forth.

2. The construction of the stand with movable and stationary disks A B, the stationary disk having marks of a compass-card, but lettered in reverse order, substantially as and for the purpose described.

3. The opposite poles of the needles being brought close to each other, so that their magnetism may be maintained indefinitely.

4. The pointer L of the compass-card K, in connection with the lubber-mark of the compass-bowl, substantially as and for the purpose described.

5. The compass-card K, constructed substantially as described, in connection with the needles J J, and operating as set forth.

GEO. W. WOOD.

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