

No. 765,426.

PATENTED JULY 19, 1904.

G. I. HERRICK.
COMPASS.

APPLICATION FILED SEPT. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

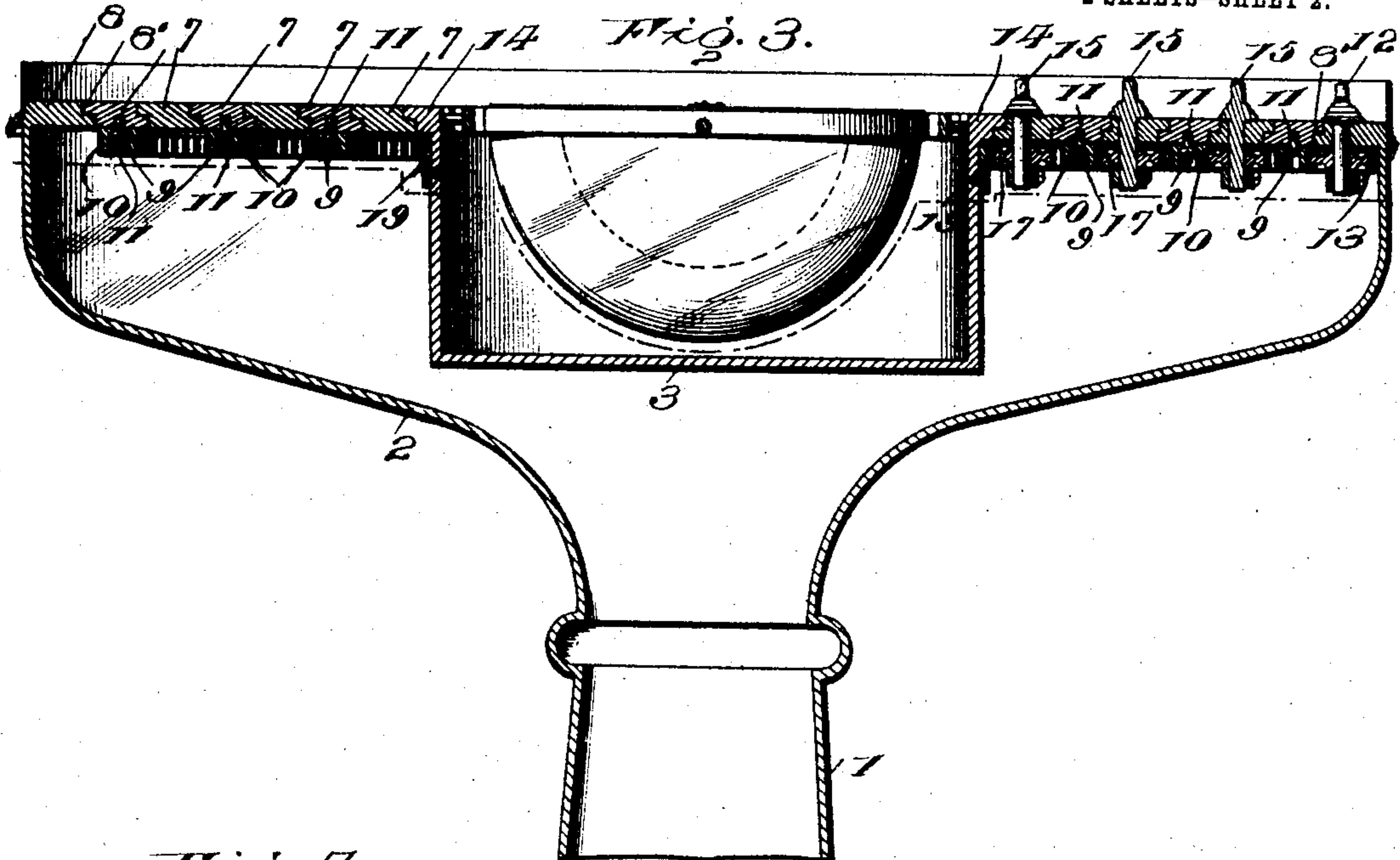
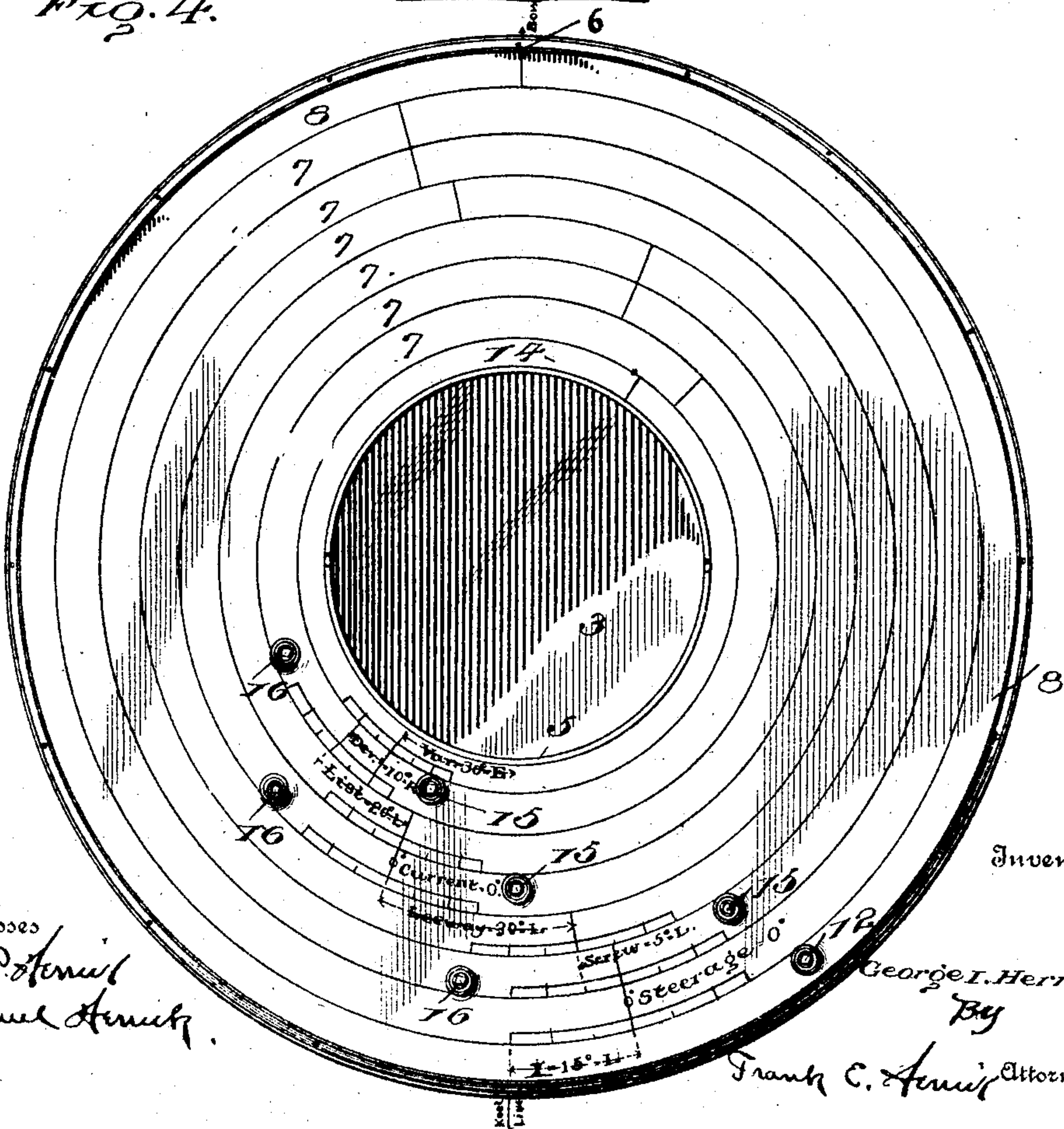


Fig. 4.



Inventor

Witnesses

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GEORGE IRA HERRICK, OF WHEATON, ILLINOIS.

COMPASS.

SPECIFICATION forming part of Letters Patent No. 765,426, dated July 19, 1904.

Application filed September 12, 1903. Serial No. 172,934. (No model.)

To all whom it may concern:

Be it known that I, GEORGE IRA HERRICK, a citizen of the United States, residing at Wheaton, in the county of Dupage and State of Illinois, have invented new and useful Improvements in Compasses, of which the following is a specification.

My invention relates to that class of devices especially adapted for the correction of errors in the course of vessels such as arise from the effects of magnetism upon the compass-needle at different parts of the earth's surface and of the parts of the vessel due to the material thereof.

Furthermore, this invention embraces corrections in the course for leeway, list, current, the set of the screw, and steerage, as well as for deviation and variation, as above referred to.

This device is designed as an improvement to be placed upon mariners' compasses and forms a simple and useful means of making allowances necessary to be taken into consideration by mariners in holding a vessel to a desired course due to the errors that may creep into their bearings and reckonings and which have been alluded to in the foregoing paragraph.

The details of this construction will appear from the following description and may be readily understood upon reference to the accompanying drawings, in which—

Figure 1 is a top plan view of a mariner's compass provided with my improvement. Fig. 2 is a bottom plan view of the device. Fig. 3 is a section taken on line *xx* of Fig. 1. Fig. 4 is a view showing the adjustment for corrections.

This device is supported by the usual standard 1, which is formed into a circular bowl-like portion 2 at the top, within which is carried the usual compass-box 3, as seen clearly in Fig. 3. Within this box 3 is carried the compass-card 4, which is supported by the ordinary gimbal 5. Upon the face of this box, upon the interior thereof, is the lubber's mark 6, which is in a line parallel with the keel of the ship in the ordinary construction of the compass. Supporting this compass-box 3, wherein lies the difference from the usual

structure, are a series of concentric circular plates 7, which in this device are seven in number and which serve to permit of the corrections referred to being made, as will appear. The outermost of these plates 7 is mounted upon the body 2 of the support 1 in an annular seat formed in the inwardly-projecting rim 8 of this portion and has a similar seat 8' formed in the opposite edge. This plate carries, as does each alternate plate 7, a double rack member 9, which is substantially U-shaped and has teeth on both of its downwardly-extending portions 10. These rack members 9 are suitably secured to the plates 7 in any desired manner and in the present device by means of the screws 11. Mounted in the rim 8 is the shaft 12, which carries on its lower portion the toothed wheel 13, which is in engagement with one side of the rack member 9, carried by the plate 7, supported on said rim 8. The upper portion of the shaft 12 serves as a means for turning the wheel 13, and as this is done it is readily seen that the plate 7 is turned to any desired position.

Carried between the rim 8 and the rim 14 of the compass-box are the series of plates 7, each supporting the other in the manner described for supporting the outermost one on the rim 8, and upon those plates 7 not provided with rack members are mounted the shafts 15 and 16, which carry toothed wheels 17 and 18, respectively, which are similar in structure to the shaft 12 and wheel 13. The shafts 15, carrying the wheel 17, are in a line with shaft 12 and are mounted in the inner portion of the plates 7 toward the compass-box, so as to permit the wheels 17 to engage the outermost portion 10 of the rack member 9, carried on plate 7 of the series carried next within the plates supporting said shafts. On the other hand, shafts 16 and wheels 18 are carried near the outer edge of the plates supporting the same and at a distance from the shafts 15. These wheels 18 engage the rack 9 of the plate 7, surrounding this plate upon the innermost portion of the rack member. The wheel 17, carried on the innermost plate 7 adjacent the compass-box 3, engages a rack member 19, carried

around the exterior of the box, and this plate slidingly supports the rim 20 of the compass-box, whereby the box may be turned. It is readily seen that by this arrangement on turning either of the shafts 15 the racks of the inner plates are engaged by the wheels 17 and those plates 7 turned, while the plates carrying these shafts 15 remain stationary, and upon turning the shafts 16, since the wheels 18 engage the rack members of the outer plates, the plates carrying the shafts are turned. It is to be understood that all plates within the one moved are rotated therewith, thus moving the compass-box, while the plates within or surrounding the actuated plate remain stationary. These rotatable plates 7 are all graduated into degrees. The zero degree of each plate corresponds, and for a distance to each side of the zero-mark are verniers V on each plate. The zero-marks are normally in a line with the lubber's mark of the bowl of the compass-box. These plates may bear the labels of "deviation," "variation," and the like, as seen in Fig. 4.

The operation of the device will be seen on reference to Fig. 4 more particularly. Let it be supposed, for example, that the ship's course is to be corrected to allow for a variation of thirty degrees east. Then the plate 7, marked "variation," is turned the desired number of degrees, and the compass-bowl, with the lubber's mark thereon, is turned therewith to a corresponding number of degrees. The ship's course is then changed until the lubber's point is again brought to lie off the desired course as read on the compass-card when the ship shall in reality be making the course desired with the allowance for variation introduced. The corrections for different conditions are introduced in the manner just described, and in Fig. 4 is seen the resultant of corrections for thirty degrees variation east, a deviation of ten degrees, a list giving an error of twenty degrees west, an allowance for current, leeway, set of screw, and steerage, of zero, thirty degrees west, five degrees west, and zero, respectively, the course being changed until the ship's head points so as to bring the lubber's point at the angle X from zero into a line with the compass course as read from the card, whereupon the vessel will be bearing truly in the course desired.

Many details of construction may be changed and others introduced without departing from the spirit of my invention. For instance, the number of plates may be varied for different corrections to be introduced; but these and other changes are contemplated in my invention.

What I do desire to protect by Letters Patent and what I claim is—

1. In combination with a mariner's compass, a series of graduated circular plates slidably mounted around the same and adapted

upon movement to rotate the compass-box, substantially as described.

2. In a device of the character described, the combination with a rotatable compass-box, of a series of rotatable concentric, circular plates supporting said box and adapted upon rotation to turn said box, substantially as set forth.

3. In combination with a mariner's compass, a support a rotatable compass-box, and a series of rotatable graduated circular plates carried by the support and slidably secured to the compass-box, whereby on movement of the plates the box will be rotated, substantially as set forth.

4. In combination with a mariner's compass, a support, a series of rotatable concentric plates carried within the same, the alternate plates being provided with rack members and the other plates having means adapted to engage the racks whereby said plates may be turned, and a compass-box rotatable with the inner of said plates, substantially as described.

5. A device of the character described comprising a support, a series of circular, concentric plates slidably secured one upon the other, mounted for rotation within said support said plates being graduated into degrees of a circle, a compass-box mounted upon the inner plate, and means extending through said plates adapted to rotate the same, substantially as set forth.

6. In combination with the support of a mariner's compass, a rotatable compass-box provided with the usual lubber's point therein, concentric circular plates graduated into degrees rotatably mounted in the support and slidably supporting said box, rack members carried by alternate plates and by the compass-box, and rotatable means carried by each of the other of said plates and by the support, whereby all the plates within the plate bearing the means turned are rotated and the compass-box turned to a desired angle, substantially as and for the purpose set forth.

7. In combination with a mariner's compass, a rotatable compass-box provided with a rack member upon its exterior and having the usual lubber's mark within the same, a series of concentric, graduated plates slidably supported one by the other and supporting said compass-box, each of said plates being rotatable independent of the others surrounding the same, and means for rotating said plates independently of the ones surrounding the same whereby said compass-box may be moved to any desired angle, substantially as described.

8. In a device of the character set forth, the combination with a rotatable compass-box having a rack member thereon, of a series of rotatable, concentric plates graduated into three hundred and sixty degrees slidably supported one upon the other and supporting the

said box, and a series of means for rotating the same, the said means carried by the innermost plate being adapted to engage the rack member of the compass-box to rotate the said box, substantially as set forth.

9. In combination with a mariner's compass having a rotatable compass-box, a series of rotatable concentric, graduated plates mounted for rotation with said box, and means whereby the inner plates may be rotated without moving the plates without the same, and means carried by the innermost plates adapted to engage the said compass-box to actuate the same whereby the compass-box may be moved to any desired angle, substantially as set forth.

10. In a device of the character described, the combination with a support, a series of concentric plates carried within the support and being graduated into the degrees of a cir-

cle, said plates being slidably supported upon one another and being adapted to be turned to any angle to allow for corrections of a ship's course, and a rotatable compass-box mounted upon one of said plates being provided with a lubber's point marked upon the bowl thereof, whereby upon rotation of said plates the said compass-box and mark are turned a corresponding number of degrees to permit of a correction of the ship's course with reference to the compass-card, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE IRA HERRICK.

Witnesses:

R. P. HERRICK,
SAMUEL HERRICK.