

(No Model.)

J. E. HAND.
BINNACLE FOR SHIPS' COMPASSES.

No. 426,804.

Patented Apr. 29, 1890.

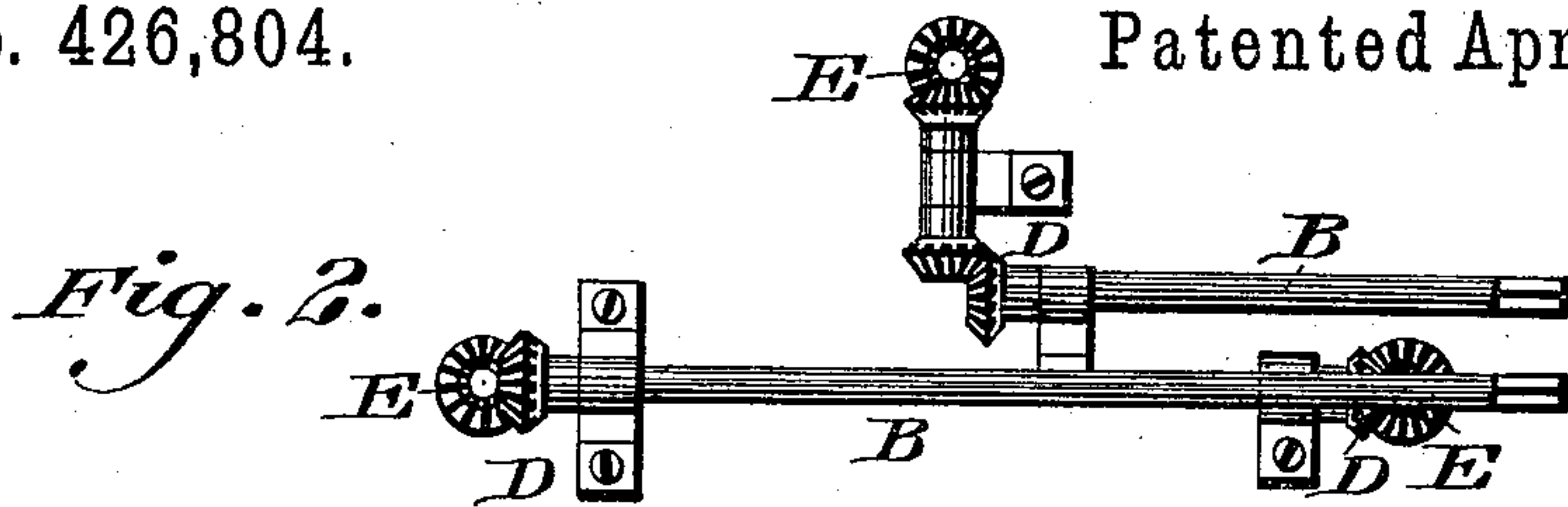
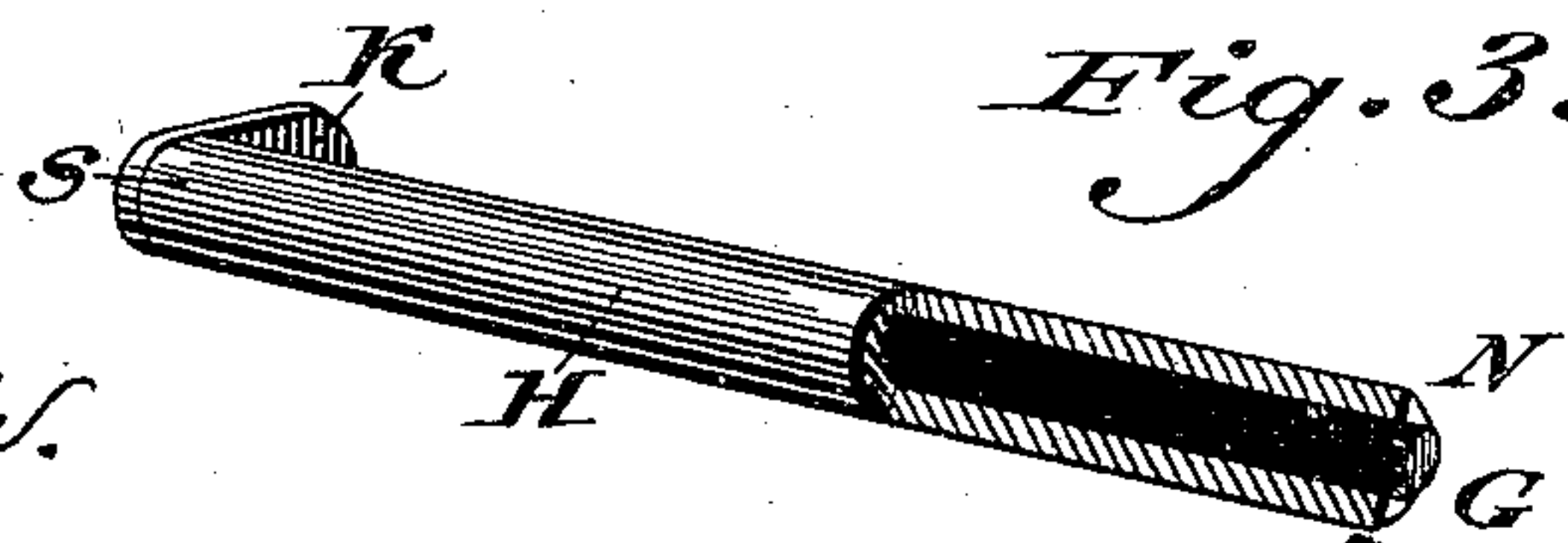
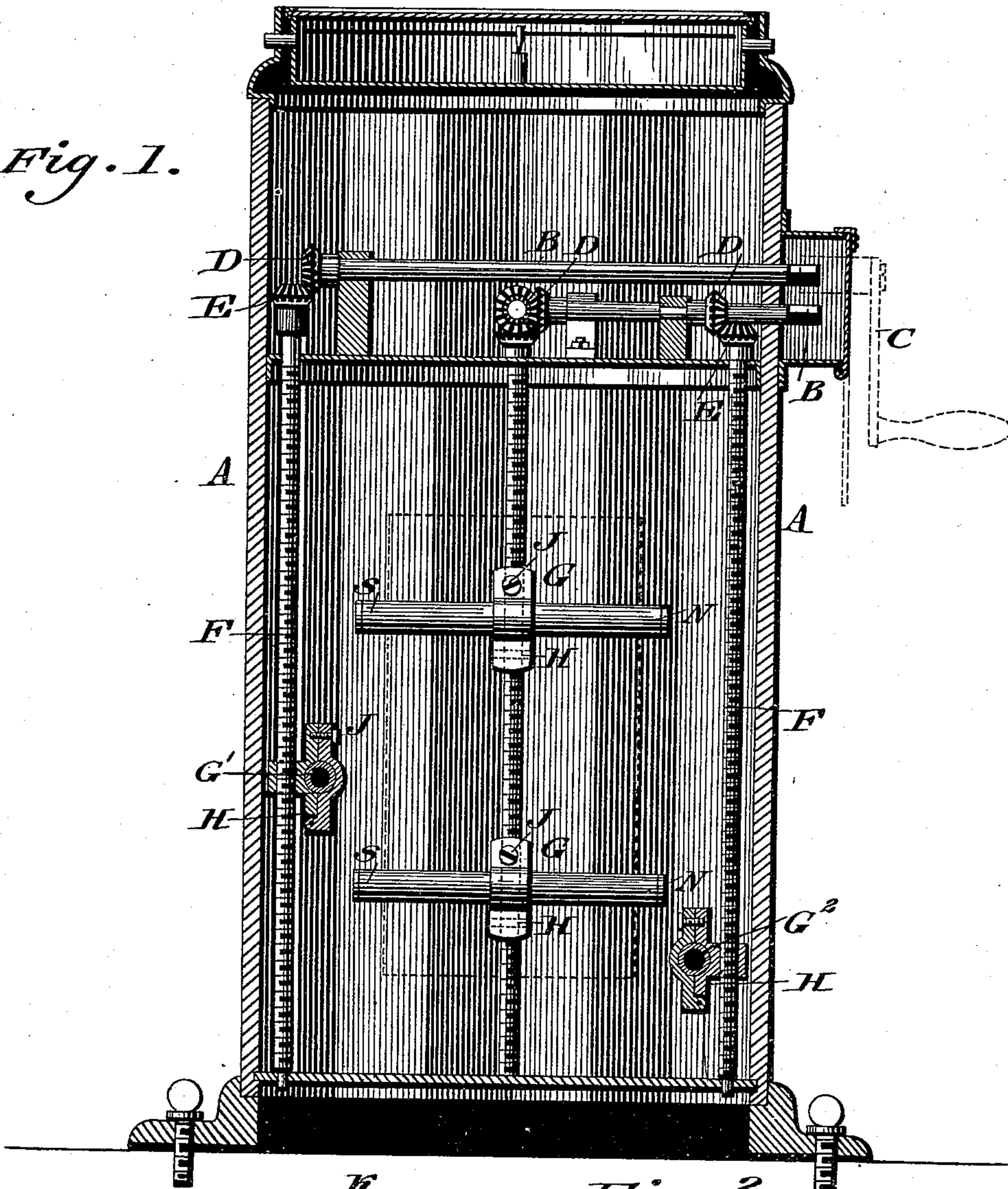


Fig. 1.



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BINNACLE FOR SHIPS' COMPASSES.

SPECIFICATION forming part of Letters Patent No. 426,804, dated April 29, 1890.

Application filed May 23, 1889. Serial No. 311,847. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. HAND, a citizen of the United States, residing at Atco, in the county of Camden and State of New Jersey, have invented a new and useful Improvement in Binnacles for Ships' Compasses, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in binnacles for ships' compasses; and it consists of a binnacle constructed substantially as hereinafter described and claimed, whereby a master or other officer of a ship is enabled to adjust the compass, thus dispensing with a person especially skilled as an adjuster.

Figure 1 represents a vertical section of a ship's compass embodying my invention. Fig. 2 represents a top view of a detached portion thereof. Fig. 3 represents a perspective view, on an enlarged scale, of one of the magnet-holders.

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

Referring to the drawings, A designates the case or body of a binnacle, within which are mounted horizontally-arranged shafts B, one end of each of which is accessible at the side of the body and squared for attachment of an operating crank-handle C. The other end of the shafts carry bevel-wheels D, which mesh with bevel-wheels E, the latter being secured to screws or screw-rods F, which are mounted vertically within said body A.

G G' G² designate magnets which are removably fitted to holders H, of the form of tubes or sleeves made in sections hinged one to the other and provided with screws J, whereby the sections may clamp the magnets between them. The ends of the holders are provided with lips K, which are adapted to abut against the wall of the body A, and thus prevent said holders from rotating, it being noticed that said holders have the screw-rods F fitted to them, whereby by rotating said rods the magnets may be raised or lowered according to requirements. The magnets G, which in the present case are two in number, are athwart-ship. The magnets G' G², each one in number, are fore and aft.

The following is an example of the operation of the binnacle, the magnets having been removed. Bring the ship's head to one of the cardinal points, (correct magnetic,) commence-

ing, however, at W. The ship's head is brought correct magnetic W.; but the ship's head by compass is W. by S., one point E. deviation. Apply one of the fore-and-aft magnets to its holder and clamp it thereto, the N. or red end being aft therein. Then raise the magnet by operating the proper crank-handle until the compass points magnetic W. Now take the ship's head correct magnetic N. and steady her there. Suppose the compass shows N. N. E. two points W. deviation. In this case place an athwart-ship magnet in its holder, N. or red end to port, clamp the magnet in position, and raise the magnet until the N. reaches the lubber's line, after which bring the ship's head N. E. The compass may show N. E. $\frac{1}{2}$ N. Cast-iron correctors or chain-boxes may be used on the port or starboard side. Bring the ship's head correct magnetic E. If there is no error the adjustment is good; but if the error amounts to $\frac{1}{2}$ point, raise or lower the fore-and-aft magnet to reduce said error. Now bring the ship's head correct magnetic S. If there is no error the adjustment is good. If the deviation is $\frac{1}{4}$ point, move the athwart-ship magnet until the error is reduced. The ship may now be swung a second time, taking the deviation of every alternate point. When the ship has large errors, two or more magnets may be used on the fore-and-aft and athwart-ship side.

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

1. A binnacle having the horizontal shafts B suitably journaled therein and provided with gear-wheels thereon, vertical screw-shafts with wheels E thereon, and the rising and falling holders H on said vertical screw-shafts and carrying the magnets G G' G², the said magnets G G and G' G² being, respectively, opposite each other, said parts being combined substantially as described.

2. A binnacle having the holders H, provided with the lips K and carrying magnets, and mechanism, substantially as described, for vertically adjusting said holders, said holders being on opposite sides of the binnacle, said parts being combined substantially as described.

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Witnesses:

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