

C. A. McCallister.
NAUTICAL INSTRUMENT.
APPLICATION FILED SEPT. 17, 1909.

972,889.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.

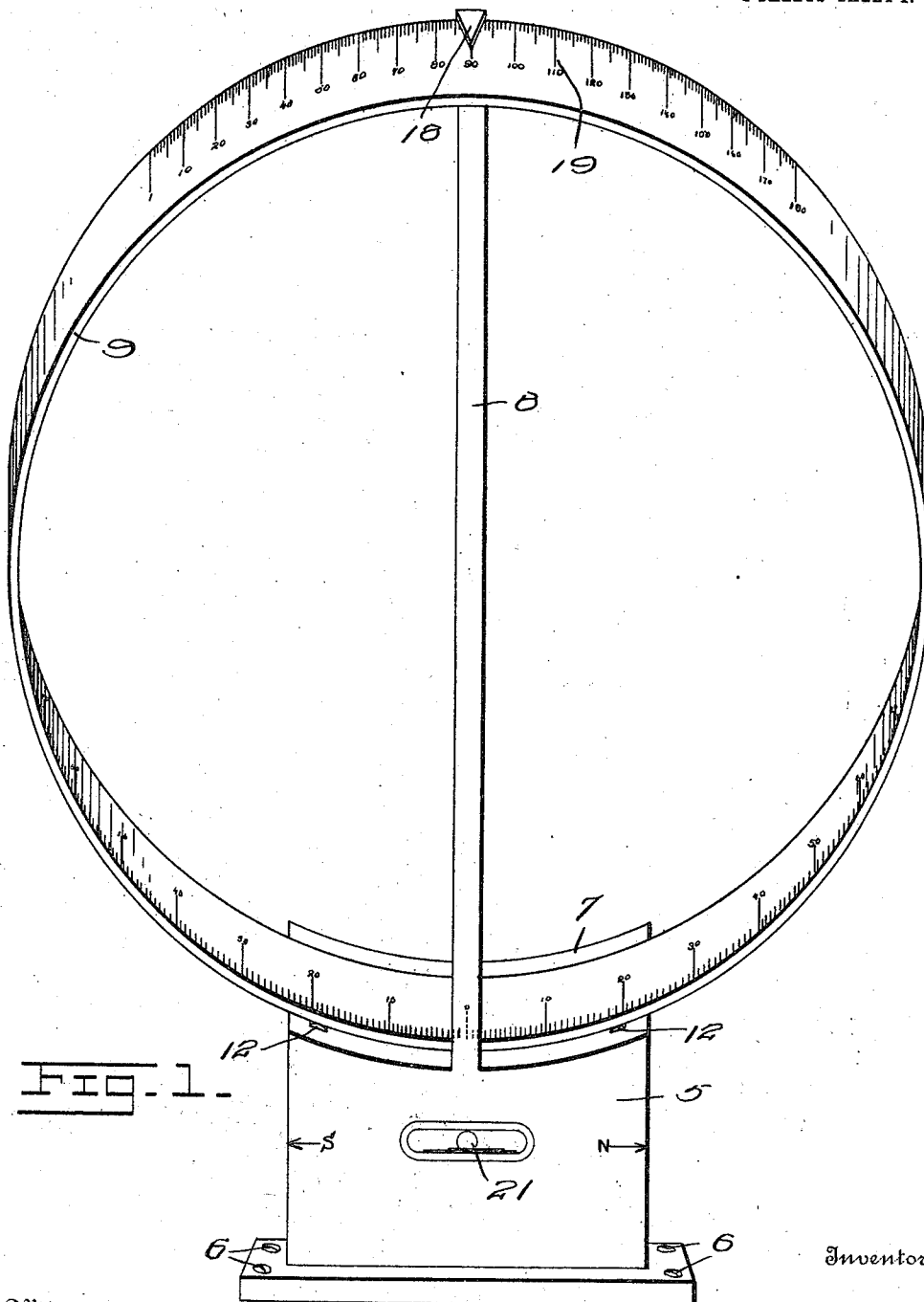


Fig. 1.

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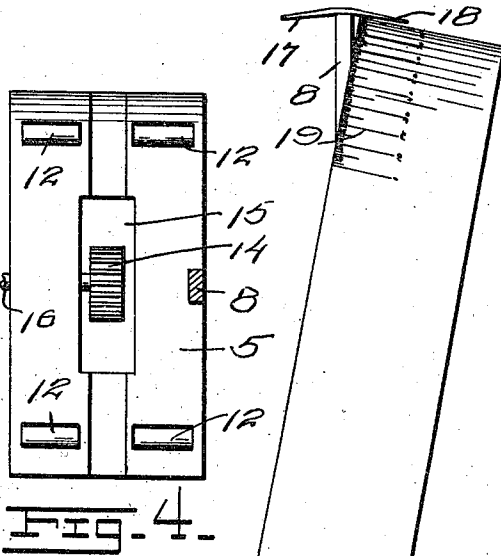


Fig. 2.

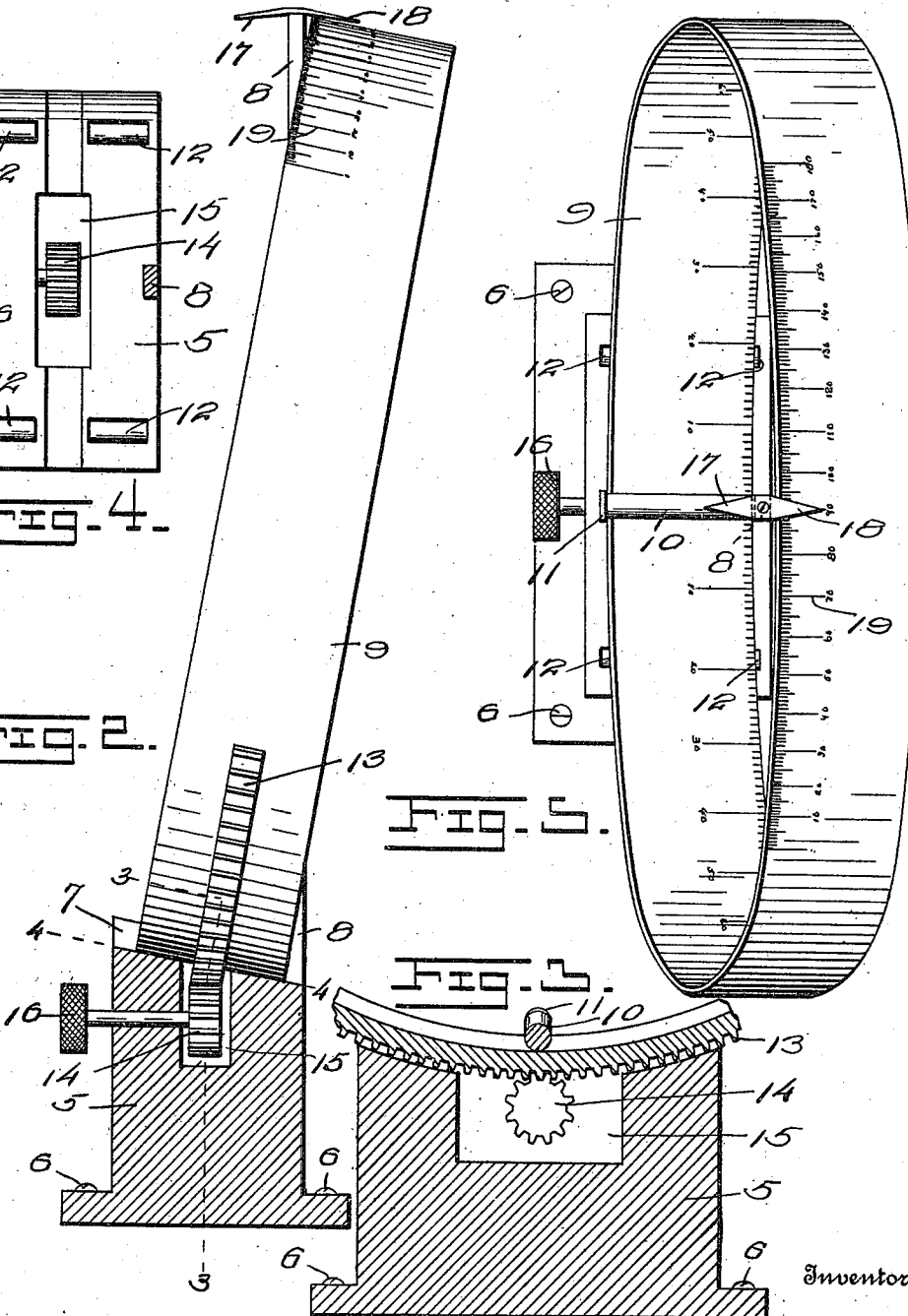


Fig. 5.

Fig. 3.

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UNITED STATES PATENT OFFICE.

CLARENCE A. McCALLISTER, OF MARIETTA, WASHINGTON.

NAUTICAL INSTRUMENT.

972,889.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed September 17, 1909. Serial No. 518,205.

To all whom it may concern:

Be it known that I, CLARENCE A. McCALLISTER, a citizen of the United States, residing at Marietta, in the county of Whatcom and State of Washington, have invented certain new and useful Improvements in Nautical Instruments, of which the following is a specification.

This invention relates to certain new and useful improvements in nautical instruments and has for its object to provide a device of this character whereby the latitude of a ship may be determined through the medium of the rays of the sun.

Another object is to provide a nautical instrument whereby the exact latitude in which the ship may be sailing may be quickly determined by a shadow cast upon a scale of latitude degrees provided upon the instrument.

A further object is to provide an instrument of the above character which is simple in construction, efficient and reliable in operation and may be manufactured at a minimum cost.

With these and other objects in view the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view of the instrument. Fig. 2 is an end view thereof, partly in section. Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2. Fig. 4 is a top view of the base. Fig. 5 is a top view.

Referring to the drawings 5 indicates a base which may be secured in position by means of the screws 6. The upper surface of the base is transversely inclined downwardly from front to rear as shown at 7, and is longitudinally concaved. A perpendicular standard 8 is integrally formed at the rear edge of the base at its longitudinal center. This standard extends through and above a degree ring 9 which is seated upon the upper inclined concave surface of the base. This ring is movable upon the base and is retained thereon by means of a roller 10

which is mounted to rotate between the ears 11 carried by the base. This roller is disposed upon the inner periphery of the ring, and suitable bearing rollers 12 are transversely arranged in the base at either end thereof upon which the ring rests, thus preventing the frictional engagement of the ring with the base upon the rotation thereof.

The ring 9 is provided with an outer circumscribing rack 13 integrally formed with the ring. This rack is engaged by a pinion 14 disposed in a recess 15 formed in the base. The pinion 14 is secured upon the end of an operating member 16 which extends exteriorly of the base and is provided with a suitable finger piece whereby it may be easily manipulated.

The upper end of the standard 8 is provided with the oppositely disposed indicating arms 17 and 18. The ring is provided upon its outer circumference with a scale of days, which may represent six months or an entire year. The arm 18 is positioned directly over the scale 19, and is adapted to register with the particular day upon which the reckoning is being taken. The inner circumference of the ring is provided with the degrees of latitude, and as will be observed in Fig. 2 the ring 9 is disposed at a vertical inclination upon the base, and the lower central portion thereof is positioned immediately beneath the indicating arm 17. Therefore the shadow cast by the arm 17 will fall directly upon the latitude degrees at the center of the instrument. It will be noted that the roller 10 is located at a sufficient distance to one side of the vertical center of the base to obviate the possibility of the same interfering with the shadow cast by the arm. The arm 17 is flat and tapering, and is pivotally mounted in the upper end of the standard 8, whereby it may be turned to narrow the shadow cast by the sun from the arm upon the ring, so that a more accurate finding may be had.

A spirit level 21 is arranged upon the front of the base, whereby the instrument may be correctly positioned when in use.

In the operation of the instrument the reckoning is to be taken at noon, and the base is positioned directly north and south and secured by means of the screw 6. The ring 9 is now turned upon the base until the arm 18 registers with the day of the year upon the outer circumference of the ring. The rays of the sun will cast a shadow

from the arm 17 on the inner circumference of the ring, at or adjacent to the center of the base 5. The point at which this shadow falls upon the scale of latitude degrees will determine the exact latitude in which the vessel is positioned. It will be understood that seconds may also be provided upon this scale, and may be easily read by the use of a microscope.

From the foregoing it will be seen that I have provided an instrument adapted for use at any season of the year, for determining the exact position of the vessel.

The device is of simple construction, absolutely accurate in operation, and may be manufactured at a comparatively low cost.

What is claimed is:

1. An instrument of the class described comprising a base, a ring rotatably mounted upon said base, said ring being disposed at a vertical inclination to the base and provided with a scale of days and a scale of latitude degrees, and a standard carried by the base, said standard having arms at its upper end, one of said arms being adapted to register with the scale of days, the other of said arms extending over a portion of the ring in spaced relation therewith to project a shadow upon the scale of latitude degrees.

2. An instrument of the class described comprising a base, having an upper concave surface, a ring mounted upon the concave surface of said base, said ring having a scale of days upon its outer surface, and a scale of latitude upon its inner surface and inclined from the vertical, means for retaining the ring upon the base, means for rotating said ring, and a perpendicular standard disposed at the rear edge of said base, said standard carrying indicating arms at its upper end, one of said arms being adapted to register with the scale of days upon the outer circumference of the ring, the other of said arms extending over a portion of the ring in spaced relation therewith to project a shadow upon the scale of latitude degrees provided upon the inner circumference of the ring.

3. An instrument of the class described, comprising a base having a longitudinally concave upper surface, a ring mounted upon the concave surface of the base and disposed at a vertical rearward inclination thereto, means for retaining the ring on the base, a rack carried by said ring, a pinion mounted in the base engaging with said rack to rotate the ring, said ring being provided with a scale of days upon its circumference and a scale of latitude degrees on its inner surface, and oppositely disposed indicating arms carried by the base, one of said arms registering with the scale of days, and the other of said arms over a portion

of the ring being extended in spaced relation therewith to project a shadow upon the scale of latitude degrees.

4. An instrument of the class described comprising a base, having a transversely inclined upper surface, a ring having a scale of days upon its circumference and a scale of latitude upon its inner surface mounted upon said base and extending at an inclination thereto, a transversely mounted roller carried by the base adapted to retain the ring in position thereon, bearing rollers disposed in the opposite ends of the base, means for rotating said ring, a vertical standard carried by the base, an indicating arm secured to the upper end of said standard, said arm being positioned over the scale of days upon the ring, and a pivoted indicating arm spaced over and adapted to project a shadow upon the scale of latitude.

5. An instrument of the class described comprising a base, a ring vertically positioned upon said base and having a scale of days upon its circumference and a scale of latitude upon its inner surface, a roller rotatably mounted upon the base, said ring extending beneath the roller, bearing rollers mounted in the opposite ends of the base, a circumscribing rack carried by the ring, a pinion mounted in the base adapted to engage with said rack to rotate the ring, a perpendicular standard mounted upon the rear of said base, said standard carrying oppositely disposed arms, one of said arms being positioned over the scale of days, the other of said arms being spaced over and adapted to project a shadow upon the scale of latitude of the ring.

6. A device of the character described comprising a base having a transversely inclined longitudinally concave upper surface, a ring having scales upon opposite sides mounted upon said base at a vertical inclination thereto, means for retaining the ring upon the base, roller bearings for said ring disposed in the base, means for rotating said ring, a perpendicular standard disposed upon the rear edge of said base, an indicating arm secured to the upper end of said standard, said arm being positioned above the scale upon the circumference of the ring, a pivoted indicating arm carried by the standard spaced over and adapted to project a shadow upon the scale on the inner surface of the ring, and a spirit level positioned in said base.

In testimony whereof I affix my signature, in presence of two witnesses.

CLARENCE A. McCALLISTER.

Witnesses:

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R. G. LINDSLEY.