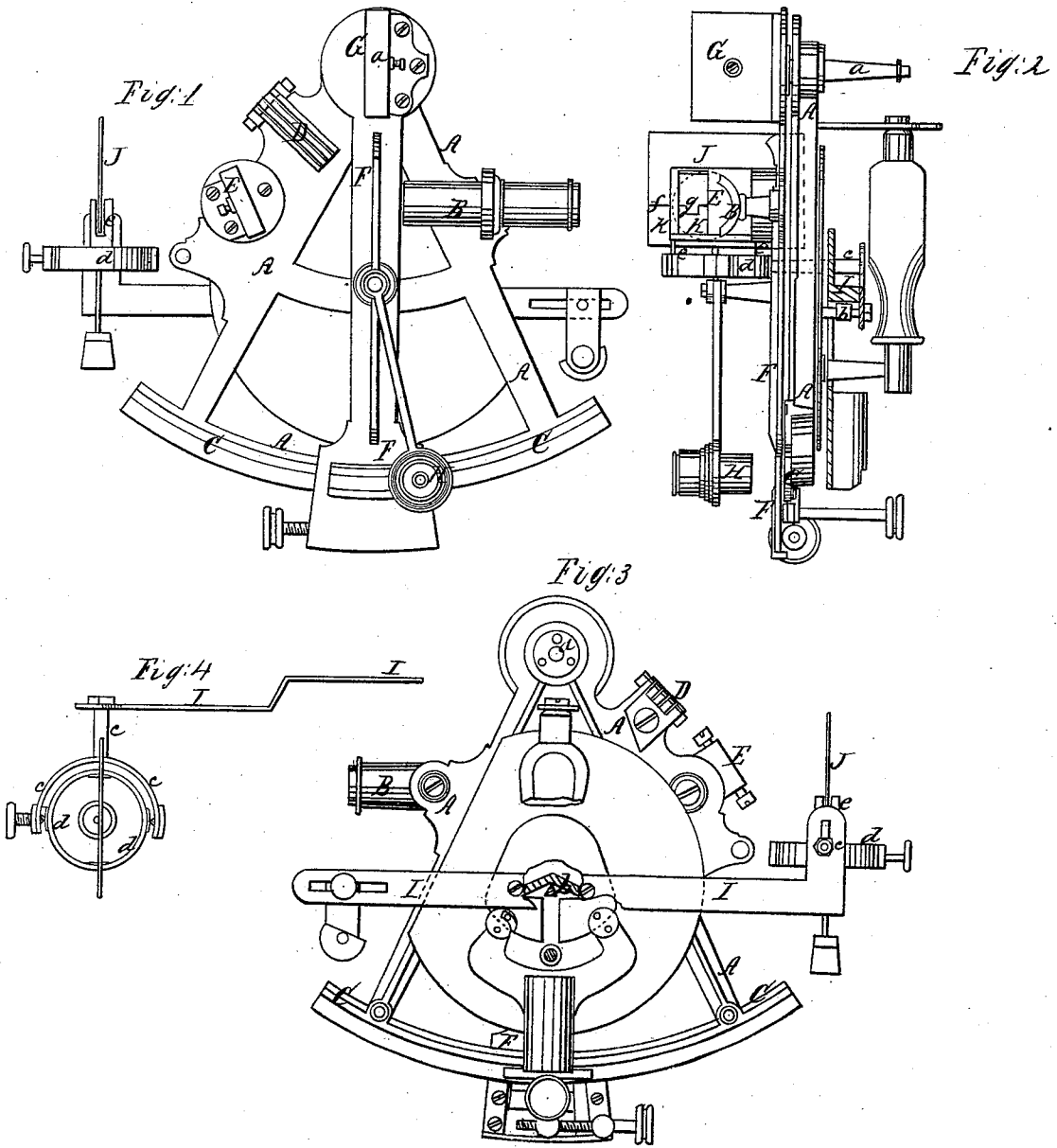


F. Holzach.

Quadrant and Sextant.

N^o 100,152.

Patented Feb. 22, 1870.



Witnesses
Chas. Nida.
J. Keenan

Inventor
F. Holzach
PER *Bruun & Co*
Attorney

United States Patent Office.

FREDERICK HOLZACH, OF NEW ORLEANS, LOUISIANA

Letters Patent No. 100,152, dated February 22, 1870.

IMPROVEMENTS IN QUADRANTS AND SEXTANTS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FREDERICK HOLZACH, of New Orleans, in the parish of Orleans, Louisiana, have invented a new and useful Improvement in Quadrants and Sextants, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 represents a face view of an octant, provided with my improvements.

Figure 2 is an end view, partly in section, of the same.

Figure 3 is a back view, partly in section, of the same.

Figure 4 is a detail plan view of the artificial horizon holder.

Similar letters of reference indicate corresponding parts.

My invention relates to that class of quadrants, sextants, &c., which are intended for use at sea, and which are provided with means for producing an artificial horizon.

The object is to make certain improvements upon the aforesaid instruments, whereby a simpler, more economical, and more accurate horizon can be obtained.

The invention consists in certain combinations and arrangements of mechanical instrumentalities, as hereinafter more particularly specified and laid claim to in the summary.

A in the drawing represents the main frame of the octant, sextant, quadrant, or other equivalent apparatus, carrying the fixed telescope B, the measuring-arm C, the screens D D, and the telescope-glass E, in the usual manner.

To its upper end is, by a pin, *a*, pivoted the measuring-bar F, which carries the mirror G and the swinging microscope H, as usual.

To the back of the frame A is secured a projecting

pin, *b*, with a sharp upper edge, on which a bar, I, is poised so that it will easily swing on said pin *b*. The ends of the bar I are equally weighted, and otherwise the said bar is, by the use of a suitable pendulum system, so balanced that it will always poise itself into a proper required position.

To the front end of the bar I is pivoted a transverse swivel-pin, *c*, which has its inner end forked, and which carries in its forked end a ring, *d*, weighted as shown, to remain horizontal and pivoted at right angles to *c*.

From the ring *d* project vertical arms *e e*, which serve to retain a plate, J, in front of the telescope and telescope-glass.

The plate J has a horizontal line, *f*, marked on it. This line represents the horizon.

When it is brought in line with the point *g* of observation marked on a plate, K, which is placed upon the telescope-glass and with the axis of the telescope, it indicates that the instrument is in proper position for taking observations. The natural horizon may be quite concealed, and still as long as the sun can be noticed, correct observations can be taken.

The time of the day can, by this device, be always ascertained, as well as, at noon, the latitude.

The bar I may, by the application of a universal joint, be so supported at its middle that it will hold the artificial horizon in the proper position without the use of the pin *c* or ring *d*. In fact, I do not confine myself to any peculiar manner of hanging and adjusting the bar I and of balancing the same; but

What I do claim as new, and desire to secure by Letters Patent, is—

The bar I and vibrating ring *d*, with its vertical arms *e e* balanced upon a point in the center of the middle radius of the instrument, substantially as described, for the purpose specified.

FREDERICK HOLZACH.

Witnesses:

FRANK BLOCKLEY,
SOLON C. KEMON.