

(No Model.)

C. E. KIRTLAND.

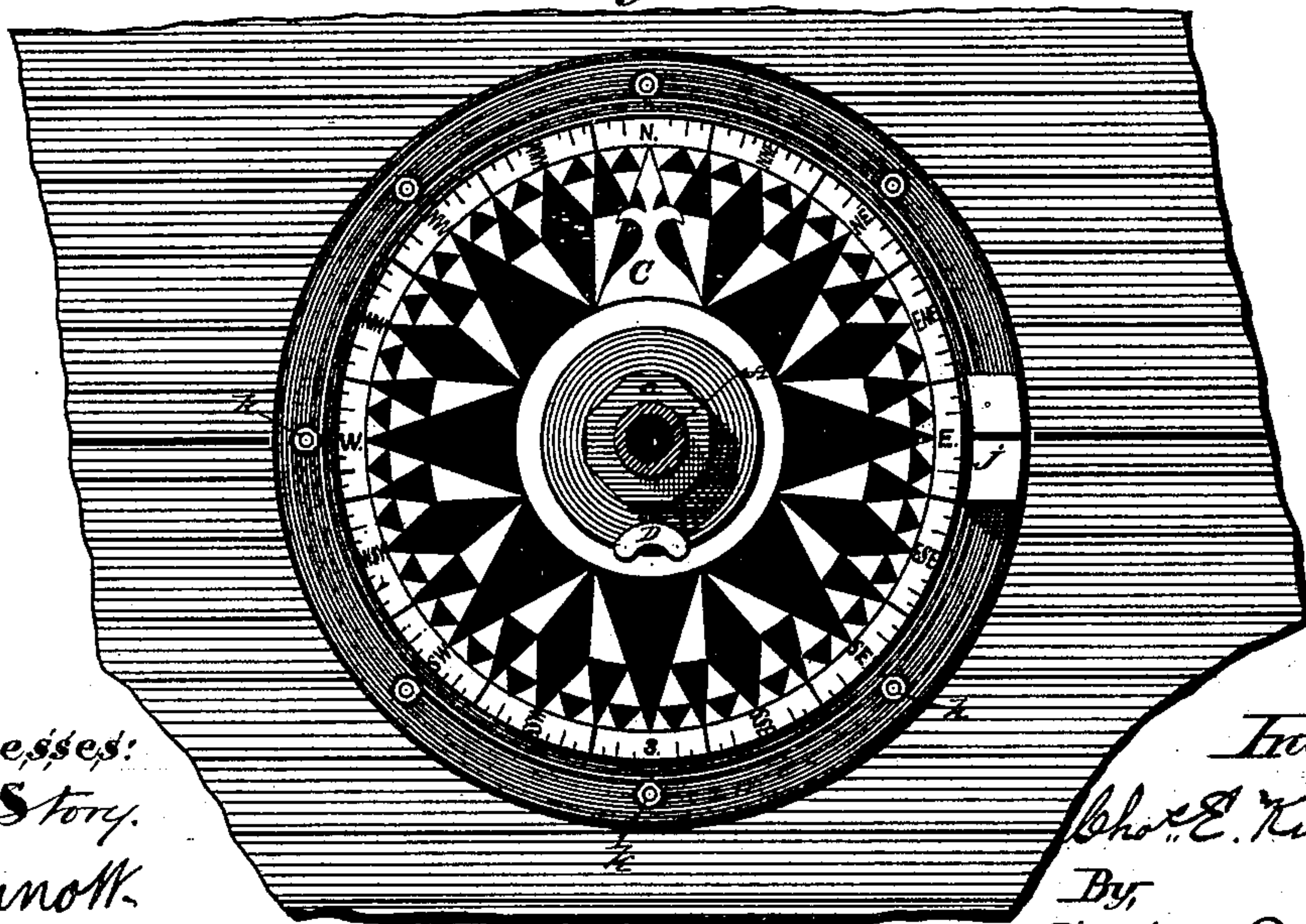
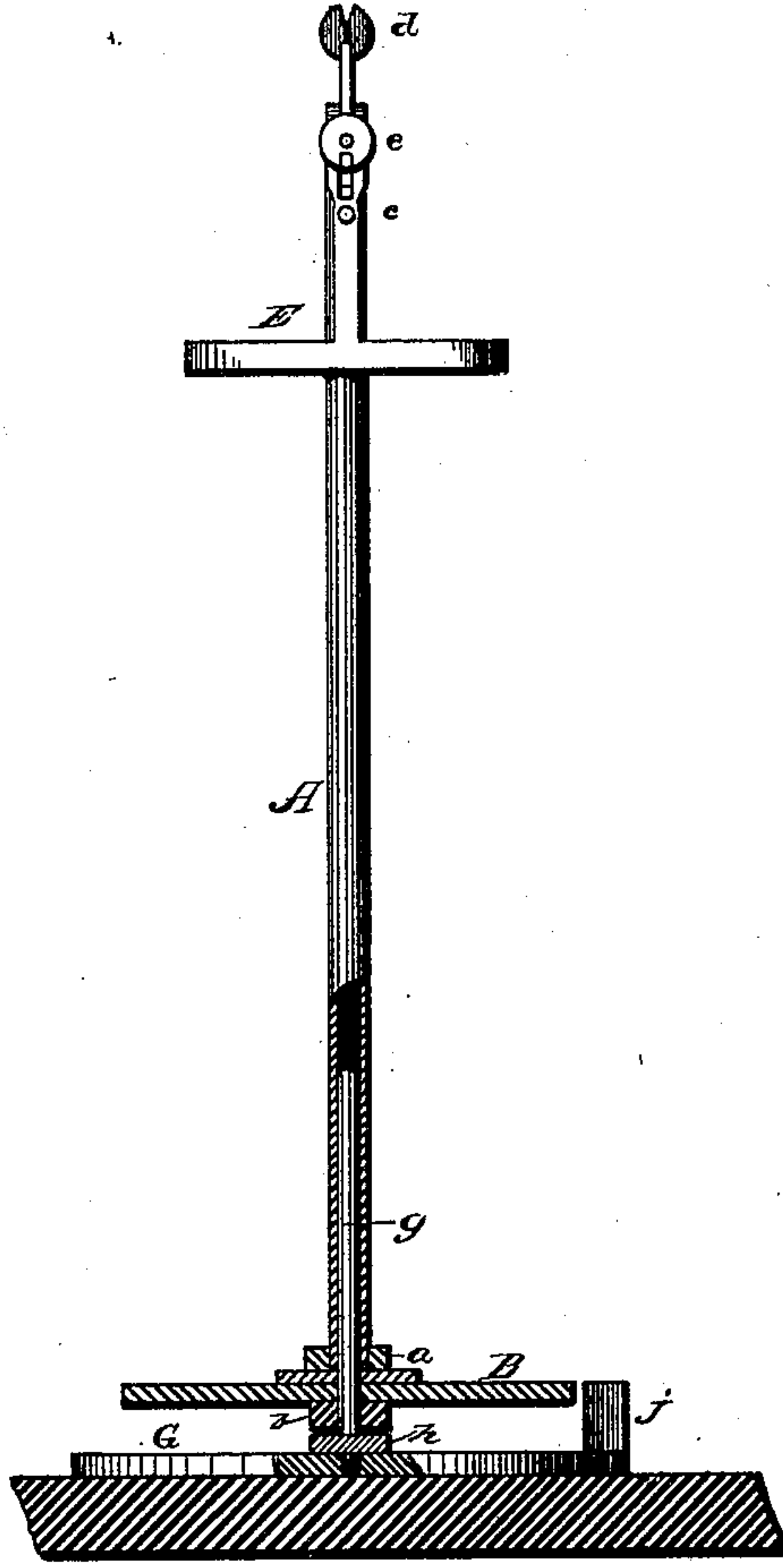
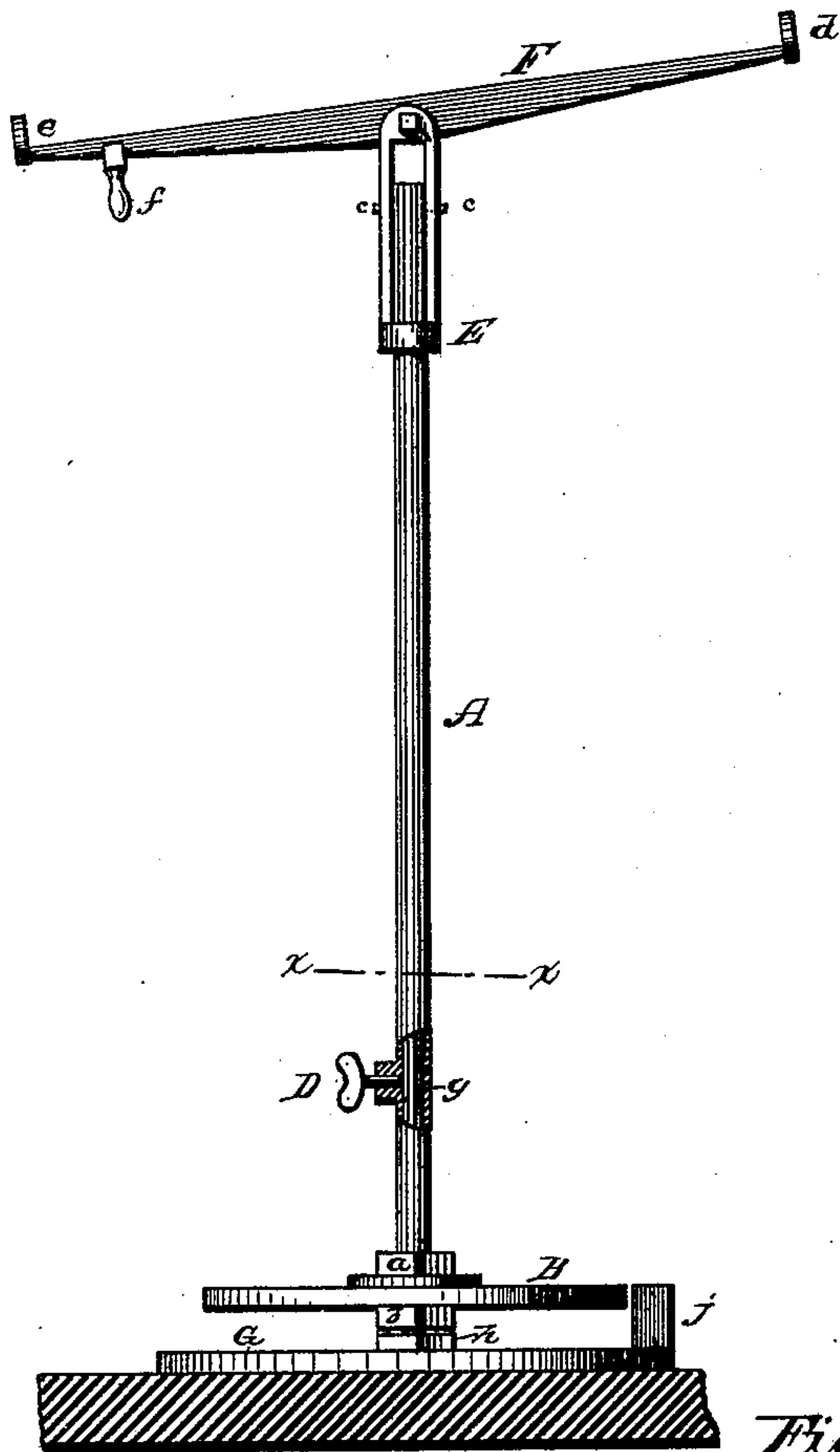
DEVICE FOR ASCERTAINING THE VARIATION OF COMPASSES.

No. 297,419.

Patented Apr. 22, 1884.

Fig. 1

Fig. 2.



Witnesses:
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DEVICE FOR ASCERTAINING THE VARIATION OF COMPASSES.

SPECIFICATION forming part of Letters Patent No. 297,419, dated April 22, 1884.

Application filed January 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. KIRTLAND, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Devices for Ascertaining the Variation of Compasses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to devices for determining the variation of the compass produced by local or other causes.

The object of my invention is to provide a device whereby, in connection with the north-star, the variation of a compass, produced by local or other causes, may be ascertained and determined.

Referring to the drawings accompanying this specification, Figure 1 is a side view of my device with a small part of the standard and the set-screw in section. Fig. 2 is a front view of my device with a portion of the lower part in section. Fig. 3 is a top view of the lower part of my device drawn on a line of x of Fig. 1.

Like letters refer to similar parts in all the views.

My invention consists of the tubular standard A, having rigidly attached thereto, by collar-nuts a and b or other suitable means, the thin circular plate or flange B, having painted or affixed on its upper surface a compass-chart, C, showing the usual compass-notation, the set-screw D, the vibrating gravity-guide frame E supported on the standard A at and by pivots c , the vertically-oscillating sight-bar F, centrally pivoted in the top of the guide-frame E at right angles to the line of motion of said guide-frame, the sight-bar having at its front extremity the rigidly-attached notched fore sight, d , and at its rear extremity the rigidly-attached centrally-bored and notched back sight, e , and the rigidly-affixed hand-knob f ; also plate G, provided with the rigidly-attached

pintle g , having collar-nut h , said pintle being centrally affixed at right angles to the surface of the plate G and the rigidly-affixed guide-standard j , which standard projects upward from the plate G a distance corresponding to the thickness of collar h , nut b , and plate B, and is notched radially with reference to the center of the plate B as a center in its upper surface, said plate G being rigidly affixed, by screw-threaded bolts k or some equivalent means, to the deck of the vessel or other suitable place, and preferably so that the center of pintle g and the radial notch in standard j shall be in a line running fore and aft of the vessel. The pintle g is adapted to fit into the lower part of the tubular standard A, and extending above the set-screw D, to allow the standard A freely to revolve about it, said standard, by its collar-nut b , bearing on and being supported by the pintle-collar nut h .

It is obvious that the oscillating motion of the sight-bar F and the vibrating motion of the guide-frame E at right angles to the line of motion of said sight-bar F adapts my device for use as well when the vessel is well over on her beam ends as when down at the fore or aft. My device being thus placed in position adjutably on the pintle, the pintle being rigidly affixed to the deck of the vessel or other suitable place in line fore and aft with the notch in the upper surface of guide-standard j , such line being the same or parallel with the ship's-head compass-mark, is adapted for sighting the north star, and thereby ascertaining the ship's course and the variation, if any, of the ship's compass. To accomplish this, the north star is sighted through the notches in sights e and d , and in that position the standard A, with its chart-bearing plate B, is temporarily fixed to the pintle g by means of the set-screw D, when the ship's direction is seen by the readings on chart C on the point at the notch in guide-standard j , and the variation of the ship's compass, if any, is shown by the readings thereon, at the same time indicating the ship's course compared with its true course as shown by my device.

My device may also be used for fixing the true course of the vessel by bringing the point on the chart C, indicating the proposed course

of the vessel, to the notch on standard *j*, and securing it there by means of the set-screw D, and thereupon causing the vessel, by its steering apparatus, to be brought into such course that the north star is in line through sights *d* and *e*.

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

1. A device for ascertaining the variation of a compass, substantially as herein shown and described, consisting of a fore sight and rear sight rigidly affixed at the respective ends of a vertically-oscillating sight-bar centrally pivoted in the top of a gravity-acting guide-frame vibrating freely at right angles to the line of motion of the sight-bar and pivoted near its top, at the top of a standard on and by which it is supported, and against which it is guided, which standard, near its lower end, has a rigid flange or plate on which is the usual compass-chart notation, and at the end of which standard, below said flange, is a bearing-collar, said bearing-collar and plate being centrally perforated, admitting a supporting-pintle adjustably inserted through said collar and plate up a distance into the tubular standard, said pintle having a rigid collar near its lower end, on and against which the above-described standard-collar bears and is supported, said pintle and pintle-collar being rigidly affixed to a plate, which plate is adapted to be rigidly affixed to the deck of a vessel or

other suitable place, and which plate has also a guide-standard, with a fore-and-aft notch in its top surface, substantially as and for the purpose specified.

2. In a device for ascertaining the variation of a compass, the vertically-oscillating sight-bar F, provided at its extremities with rigidly-affixed sights *d* and *e*, the gravity-guide frame E, in the top of which guide-frame the sight-bar F is centrally pivoted, the tubular standard A, to which, near the top, the gravity-guide frame E is pivoted, said standard being provided with the rigidly-attached flange or plate B, in combination with the plate G, provided with rigidly-affixed pintle *g*, and guide-standard *j*, substantially as and for the purpose specified.

3. In a device for ascertaining the variation of a compass, the sights *d* and *e*, sight-bar F, centrally pivoted in top of gravity-guide frame E, which guide-frame is pivoted in top of tubular standard A, having chart-bearing flange B and bearing-collar nut *b*, in combination with pintle *g*, bearing-collar nut *h*, plate G, and notched guide-standard *j*, all substantially as and for the purpose specified.

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

CHAS. E. KIRTLAND.

Witnesses:

C. T. BENEDICT,
JAS. B. ERWIN.