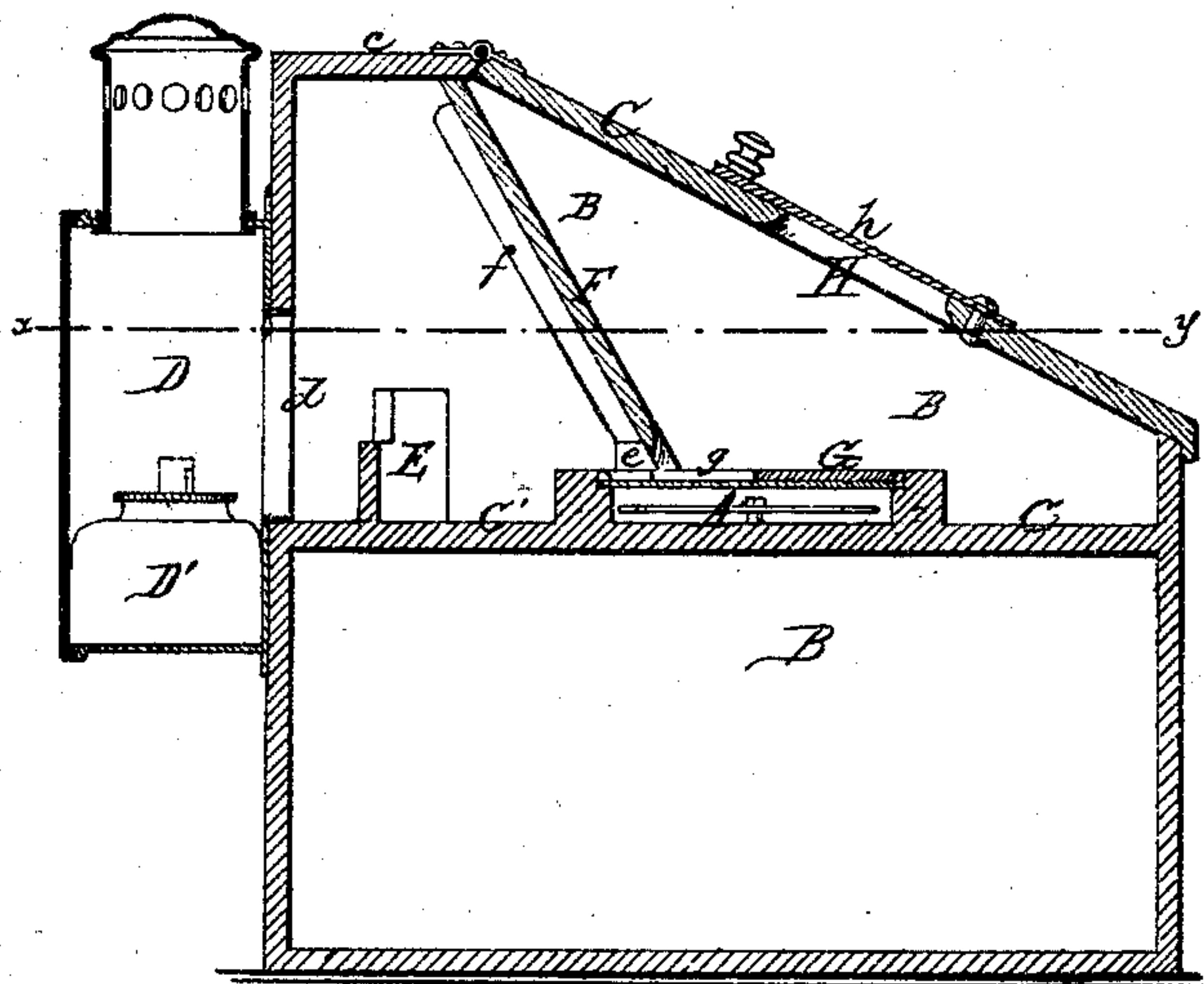


*George W. Richey and Horace E. Bixby.*

*Improved Binnacle,  
and Compass Chart.* **P.**

**1 1 6 6 3 1**

PATENTED JUL 4 1871



$\alpha'$  *Fig. 1.*

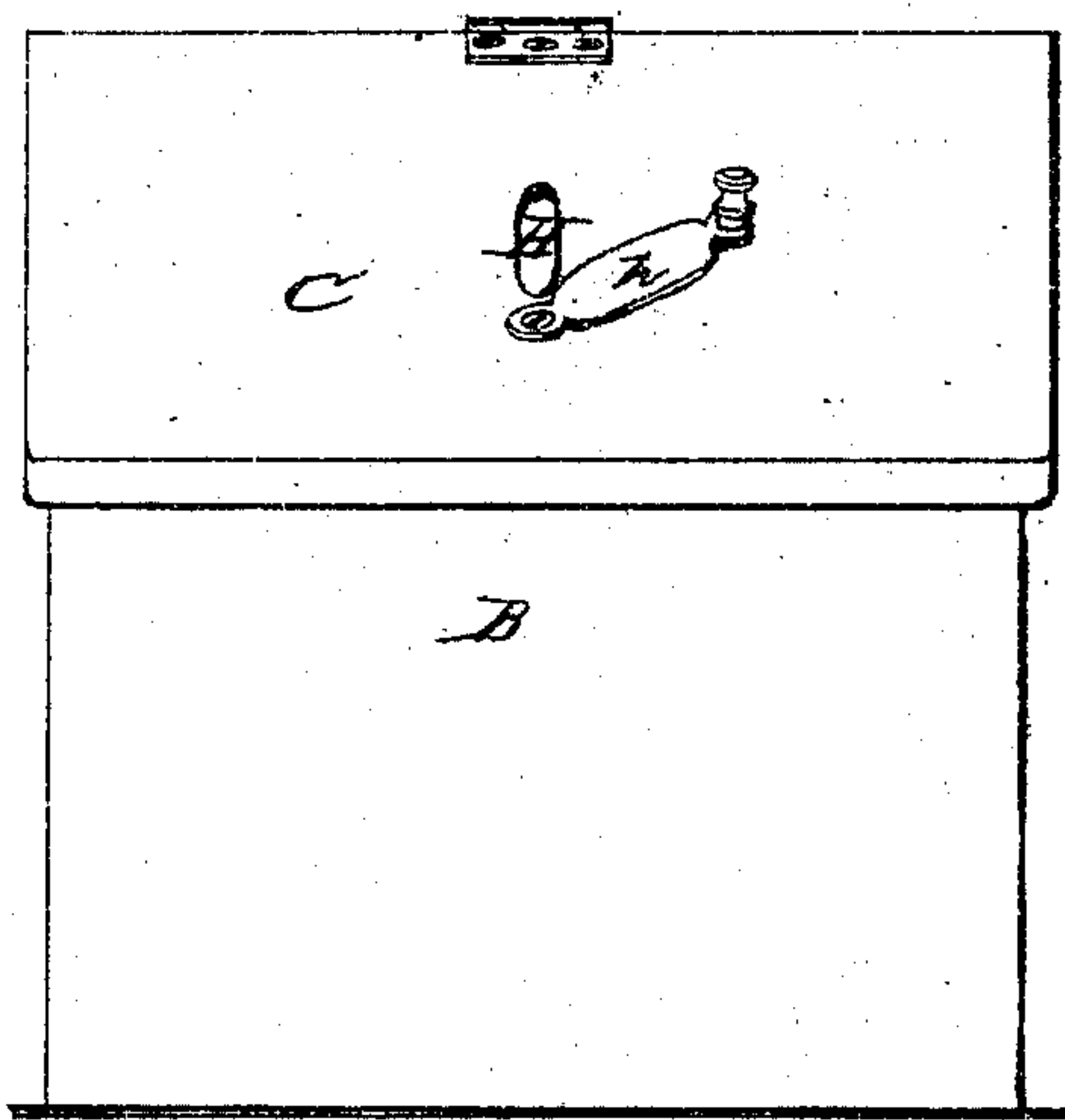
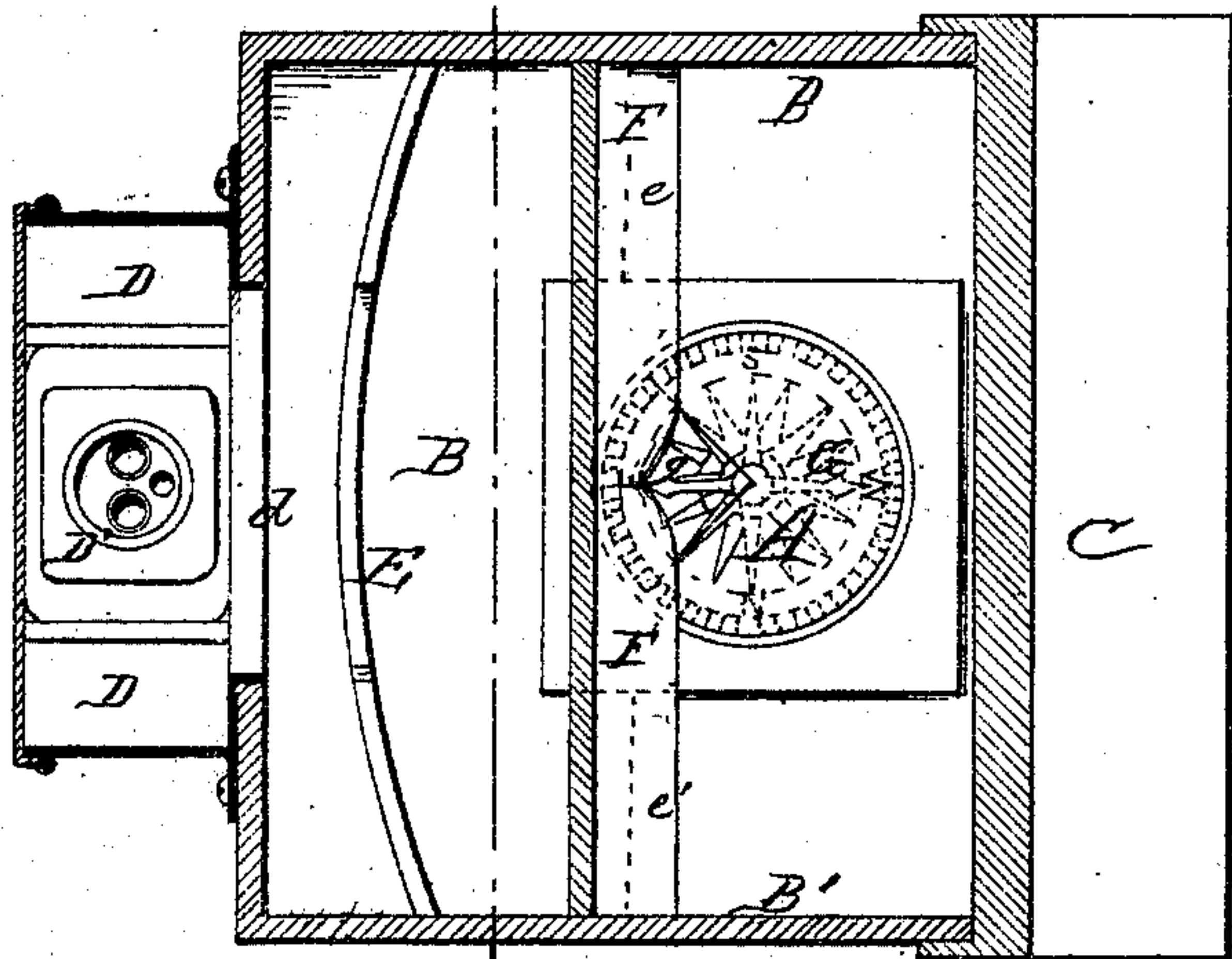


Fig. 2.



*Fig. 3.*

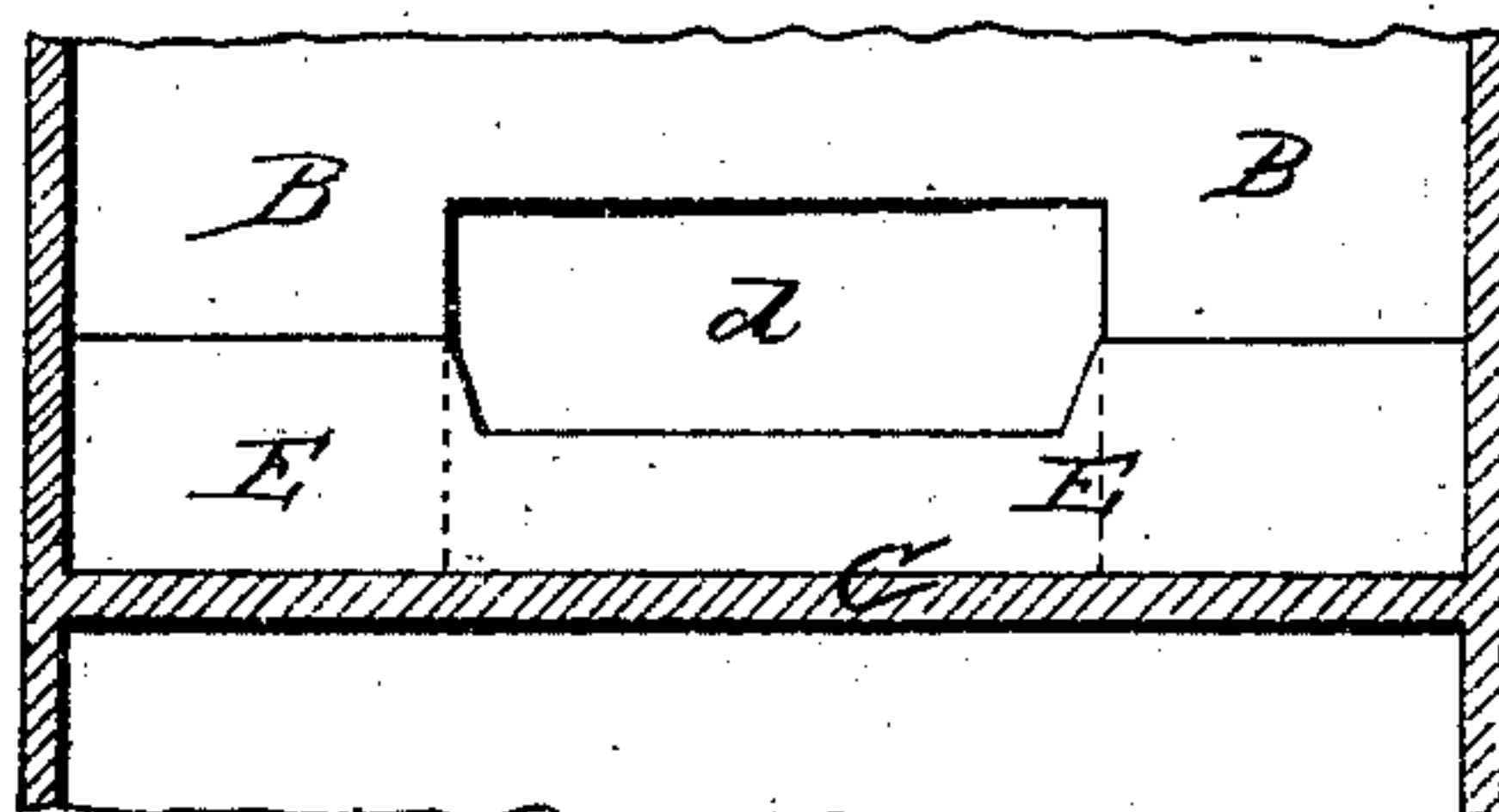
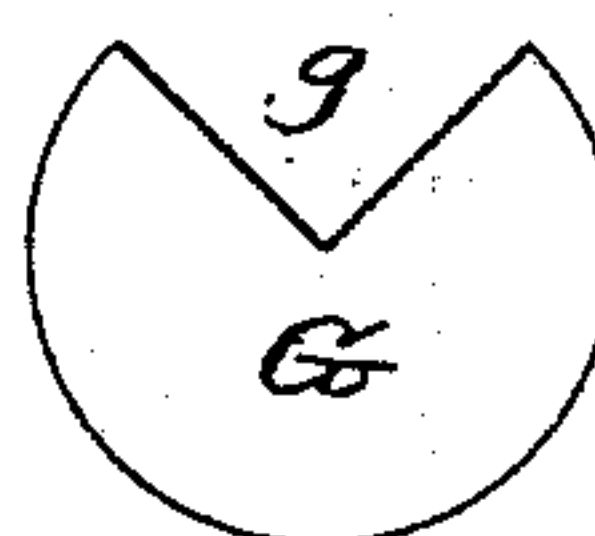


Fig. 4.



*Fig. 5.*

Witneses.

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2 Sheets of Drawings.

Sheet No 2.

George W. Richey and Horace E. Bixby.  
Compass Chart.

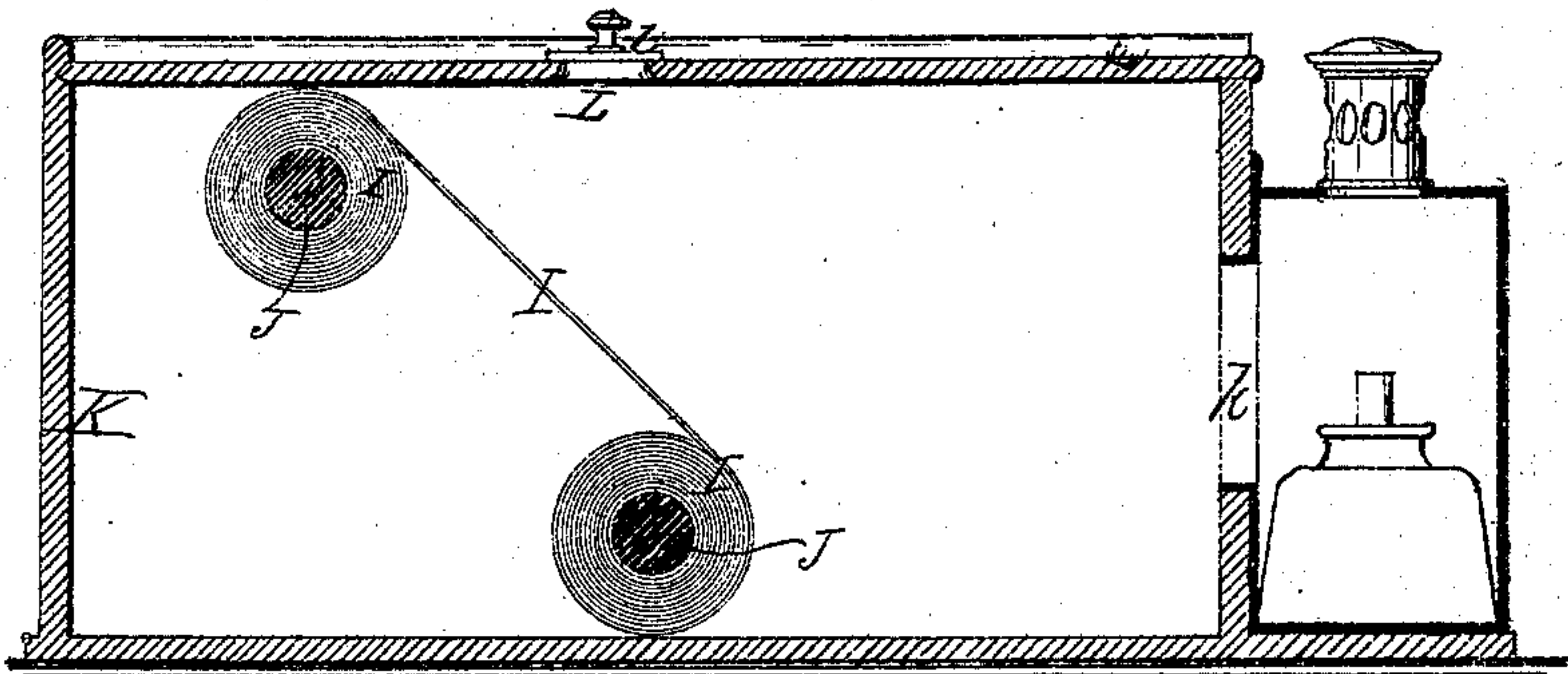


Fig. 6

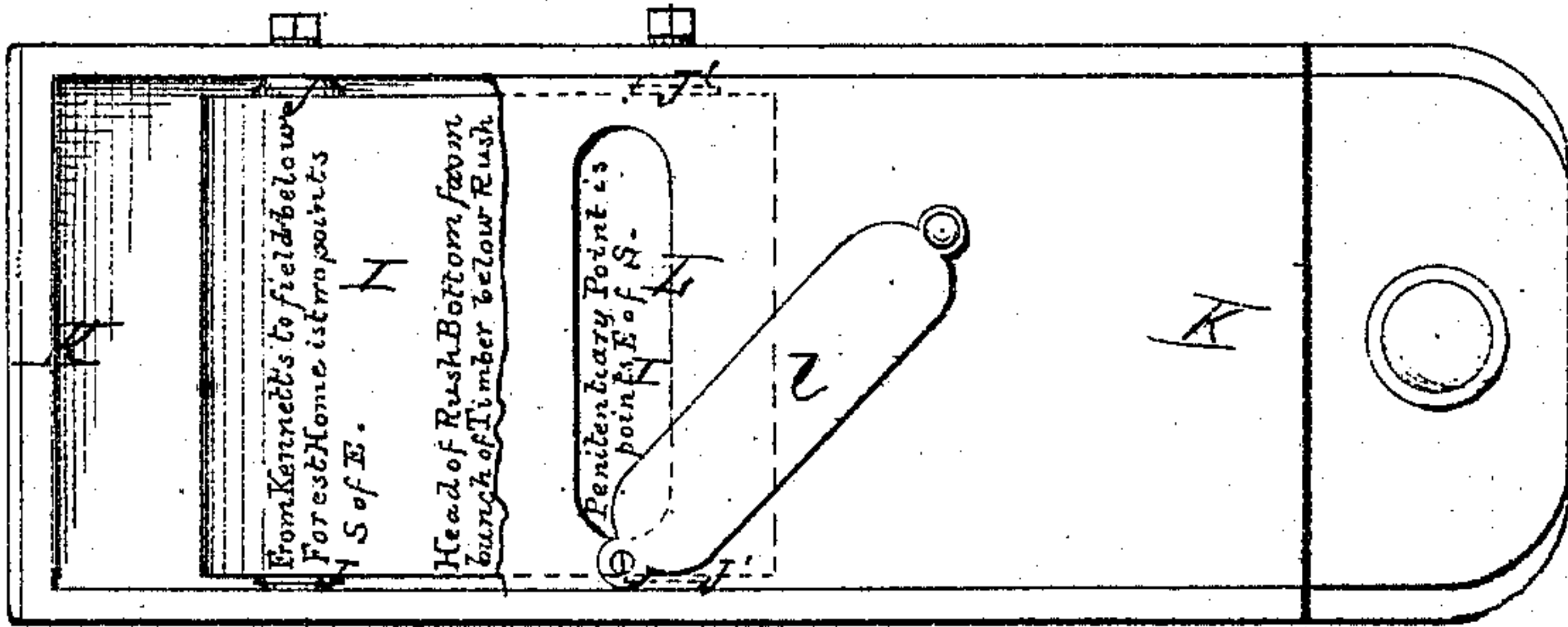


Fig. 7

Witnesses:

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Horace E. Bixby  
By their Attys  
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# UNITED STATES PATENT OFFICE.

GEORGE W. RICHEY AND HORACE E. BIXBY, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN BINNACLES FOR MARINERS' COMPASSES.

Specification forming part of Letters Patent No. 116,631, dated July 4, 1871.

*To all whom it may concern:*

Be it known that we, GEORGE W. RICHEY and HORACE E. BIXBY, of St. Louis, in the county of St. Louis and State of Missouri, have made a new and useful Improved Marine Compass, Binnacle-Box, and Compass-Chart; and we do hereby declare that the following is a full and true description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention relates to such a construction of the binnacle or housing for the protection of the compass contained therein that a light or lamp can be used in connection with said housed compass; also, to the peculiar arrangement and construction of parts to direct the light to be shed in as mellow a condition as possible toward the cardinal steering-point of the compass. This invention further relates to the application, use, and construction, in combination with the compass, of a river-guide or compass-chart wound around two reels and incased in a housing carrying a light or lamp, all of which will now more fully be described.

To enable those herein skilled to make and use our said improvements, we will now more fully describe the same, referring to the accompanying drawing, sheet 1 and 2, of which—

Figure 1 is a sectional elevation; Fig. 2, an end or front elevation; Fig. 3, a plan section at line *x y*; Figs. 4 and 5 as detail views of the shades; Fig. 6, sheet 2, a sectional elevation of compass-chart; and Fig. 7, sheet 2, top plan, with cover removed.

In the application of our said improvements the ordinary marine-compass *A* is used. The said compass is properly supported within a wooden housing, *B*, formed with slanting or inclined sides *B B'*, and closed by the hinged lid *C* attached to a narrow top piece, *c*, in manner indicated in Fig. 1. The open space around the compass is entirely closed by a thin board or card face, *C'*, properly fitted and secured. The metallic case and chimney *D*, containing lamp *D'*, is secured to housing *B*, the rear board for this purpose having a square opening or window, *d*. (See Figs. 1 and 3.)

The arrangement of wood or card shades to direct and concentrate the rays of the light to the face and cardinal point (north pole) of the compass is as follows: Within the binnacle thus formed, and fitted upright against the rear sides

thereof, is arranged a movable shade, *E*, formed in shape shown in detail, Fig. 4. The said shade *E* intercepts the lower rays of light, darkens the side passages, and throws the upper rays of the light on the face of the compass; also, the said shade, being movable, can be made to give an increased or decreased light, as desired. The side blocks or pieces *e e'* prevent the light from glaring about the side and face passages of the box and compass; also, there is arranged a detachable shade, *F*, fitted against inclined supports *f* on the sides of the box, and resting on side blocks *e e'* or rim face of the compass. The said shade *F* deflects the rays of the light to be shed more directly on the steering-point of the compass. The unrequired part of the compass is also darkened by placing upon its glass face the circular card shade *G*, cut with a sector-shaped opening, (see detail, Fig. 5,) the opened space *g* thus left being sufficient to disclose the compass-point. It is essential that the light should be as mellow in its nature as possible; therefore, the respective shades *E F*, side pieces *e e'*, together with their part interior of the binnacle *A*, are colored or painted with a light or bright-red color, while the remaining interior surface of the box as well as the face of the said shade *G* are colored with a dark brown or similar color. The lid of the binnacle has an elongated slot, *H*, to disclose the compass-point. Said opening is closed by its slide *h*.

It is apparent that the inconveniences, delays, as well as dangers often resulting from a non-capability of using the compass as ordinarily protected and housed, are thus practically overcome, and that our improved binnacle, in which a light can be used in conjunction with the compass contained, making the same serviceable at all seasons, of day, night, and weather, renders the navigation, especially of river vessels, more safe and speedy.

The compass-chart *I*, of paper or cloth, has printed upon it the names of the various stations, landings, points, and objects of steerage from place to place, together with their position and direction, (magnetic meridian,) as indicated by the points of the compass. Thus, from Kennett's to field below Forrest Home is two points S. (south) of E. (east.) (See Fig. 2, sheet 2.) Space is left between the printed lines or words to insert any changes or corrections to be observed



for steerage or guiding purposes. The printed chart thus formed is secured properly to two reels, J J', contained in a box or housing, K. The reels are turned by hand-cranks. (See Figs. 6 and 7.) The box K is also provided with a lamp or light attached to front side, which, for this purpose, has the window or opening *k*. The sliding lid or cover of the box has an elongated slot, L, covered by a hinged or sliding cover, *l*, so arranged that the compass-chart can readily be seen and read. The interior of the box is painted with a vermillion or bright-red color to soften the effect of the light.

The compass-chart may be of a river, railroad, or any other line of travel it may be desirable to illustrate. When used in conjunction with a marine compass additional protection and security for the safe and speedy navigation of vessels is achieved.

Having thus fully described our said invention, what we claim is—

1. The arrangement of shades E F, side pieces *e e'*, and circular shade G, in combination with a

binnacle, B, formed with inclined sides B B', hinged cover C with slot H and slide *h*, constructed and colored substantially as and for the purpose set forth.

2. The improved binnacle B with shades or deflectors, in combination with a marine compass, A, and light or lamp D, substantially as set forth.

3. The compass-chart with printed list of landings, places, and objects, together with points of compass indicating their magnetic direction and position, substantially as and for the purpose set forth.

4. The compass-chart or river-guide I, constructed as described, when arranged on reels J J', in combination with a box or housing, K, constructed as and for the purpose set forth.

In testimony of said invention we have hereunto set our hands.

G. W. RICHEY.  
H. E. BIXBY.

Witnesses:

WILLIAM W. HERTHEL,  
ROBERT BURNS.