No. 729,736. PATENTED JUNE 2, 1903.

J. C. COLLAMORE.

CHART TABLE.

APPLICATION FILED NOV. 8, 1902.

NO MODEL.

Fig. 1.

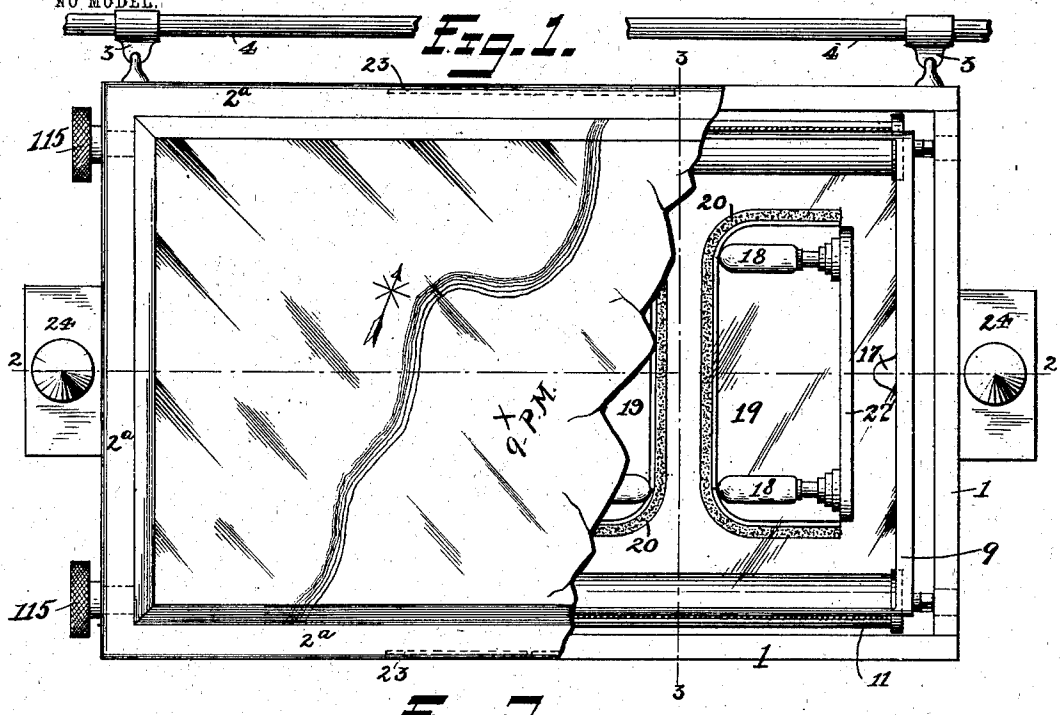



Fig. 2.

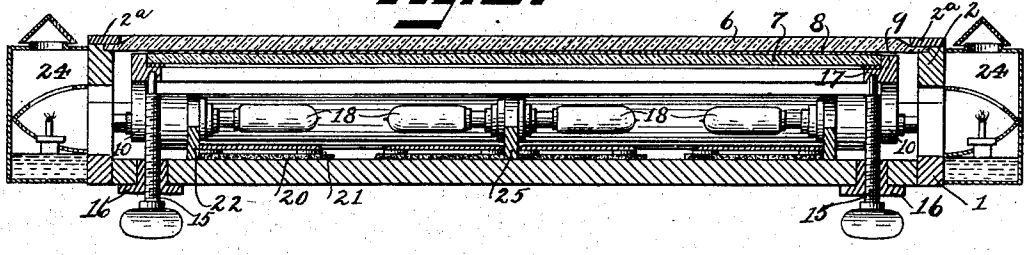



Fig. 3.

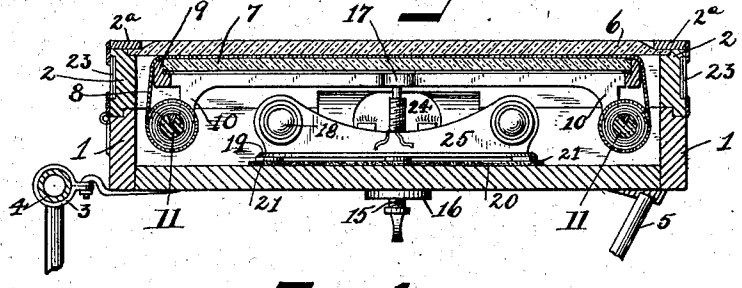
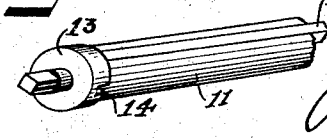



Fig. 4.




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No. 729,736. Patented June 2, 1903.

# UNITED STATES PATENT OFFICE.

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## CHART-TABLE.

SPECIFICATION forming part of Letters Patent No. 729,736, dated June 2, 1903.

Application filed November 8, 1902. Serial No. 130,538. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. COLLAMORE, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Chart-Tables, of which the following is a full, clear, and exact description.

My invention relates to the construction of an improved chart-table for use on board ship either by day or night.

It is the object of my invention to provide a construction in which an ordinary navigator's chart may be conveniently mounted, readily adjusted, safely housed, accurately read either by day or by night, and on which the navigator may lay off the course and keep record of his positions.

The invention will be found to consist in the improvements hereinafter to be described and as shown in the accompanying drawings.

The chart is mounted in an inclosed box between a support and a glass top plate, which are pressed together in order to hold the chart smooth and that it may be accurately read. The lower supporting-plate is of glass, and artificial lights are provided, so that the chart may be read at night. These lights are so mounted as to present the greatest amount of illumination for the candle-power employed, and yet confine the area of the illumination, so that no light would be visible from any other vessel. The table is made in the form of a box, which is constructed with closely-fitting joints in order that water may not enter. When artificial lights are in operation, considerable heat is generated, and for this purpose, in order to prevent warping of the box and consequent cracking of the material of which it is constructed, I thermally insulate the reflectors. Ventilating-windows are also provided in the sides of the box, which may be open when there is no danger of water entering for the purpose of ventilation to assist in keeping the temperature down. The box may be conveniently mounted on the rail of the bridge in such a manner as to be conveniently accessible to the man in charge of the wheel in order that he may take his chart-readings without going below. The box is preferably hinged to the rail in order that it may swing down out of the way when not in use or when desired. The construction of the parts should be such as to resist rather hard usage. The top of the box and the supporting-plate for the chart being both constructed of glass, additional strength must be provided in the construction of the cover in order that the glass may not sustain fracture. The glass used must also be of considerable strength.

In the accompanying sheet of drawings, Figure 1 represents a plan view of a chart-table embodying the improvements in my invention, a part of the cover of the table being broken away to show the interior. Fig. 2 is a cross-section and elevation on the line 2 2 of Fig. 1. Fig. 3 is a cross-section and elevation looking from left to right on the line 3 3 of Fig. 1. Fig. 4 is a perspective fragmentary view of the chart-holding roller.

The box constituting the outer portion of the chart-table consists of a bottom portion 1 and a top portion or cover 2, which is hinged at the rear, and fit tightly together when closed. The bottom of the box may have secured to it a ring 3 to form a hinged support to coact with the cross-bar of the bridge-rail 4. At 5 is shown the end of a prop which may be used to hold up the front edge of the box. These props are preferably provided at the two front corners. The cover of the box itself has a top 6, of heavy beveled plate-glass. This glass I prefer shall be etched or ground on the top surface very finely in order that it may be marked upon for the purpose hereinafter described. The particular size or fineness of etching which I have found best suited for this particular use is technically called "silver-embossed." The glass top may be secured to the cover by the metal strips $2^a$. Underneath this glass top 6 is mounted a plate 7 for the purpose of supporting the chart 8. This plate 7 is securely mounted in a frame 9. The sides of this frame 9 are extended downward to form hook-like projections or lugs 10 for the purpose of supporting the rollers 11, upon which the chart 8 may be rolled. In order that the chart may be very easily attached to the roller, I have grooved the roller and provided a strip 12 to fit in the groove and hold the end of the chart. To lock the strip 12 in place, the cap 13 is mounted on the shaft of

the roller and has a slot 14, which may be turned opposite the end of the strip 12 in order to free it when desired and may be turned into the position shown in Fig. 4 to lock it. The ends of the rollers 11 when in place are opposite openings in the base of the box, through which may be inserted the key 115 for the purpose of turning the rollers in the direction as desired in order to adjust the chart. It is not always necessary, however, to place the chart upon the rollers; but the ordinary rolled-up chart may be slipped down into the bottom of the box and the end of it passed over the top of the plate 7 when the box-cover is raised. When the box is closed and the chart lies between the adjacent surfaces of the glass top 6 and the supporting-plate 7, it is most desirable that the two be pressed tightly together in order to flatten down the chart and in order that it may be accurately read through the glass top. This is particularly necessary when an etched-glass top is used, since it is impossible to minutely distinguish the lines on the chart through the etched glass unless the chart is pressed closely against the surface of the glass. For this purpose I have provided the adjusting-screws 15 at both sides of the table, which pass up through bushings 16 in the bottom. The upper ends of these screws are rounded and engage in recesses in the lugs 17, which project from the sides of the frame 9, which carries the plate 7. It will be noted that by making the connection in this manner the frame 9 may not only be readily removed from the interior of the box when the cover is raised for the purpose of conveniently reaching the interior, but the frames will also be pivoted, so that any inequality or irregularity in the position of the top glass 6 may be allowed for. The plate 7 can therefore be brought up into complete engagement with the under side of the chart top glass 6 under all circumstances. When the chart is used on the rollers and it is desired to move the chart across the top of the plate 7, it is necessary to release the pressure between the top glass and the supporting-plate, since the friction would otherwise prevent the movement of the chart.

By daylight the construction thus far set forth furnishes a complete and practical chart-table. At night-time or in the dark, however, an artificial light is necessary. I have used artificial lights, which were mounted above the table, and also hand-lights with reflectors, but have found that the light from them is inadequate for the convenient reading of the chart. Moreover, such a light is visible from other vessels and is likely to be mistaken for signals. For these reasons and also in order to protect the lights from accidents to which they would be otherwise subjected in use I have provided the electric lights 18, which are mounted inside the box of the table and beneath the supporting-plate 7, which is made of transparent glass. Beneath these electric bulbs are the mirrors or reflectors 19. The heat from the electric lights is sometimes likely to cause injury to the bottom of the box, and for this reason I have provided the asbestos mats 20. In order to more perfectly thermally insulate the parts, the reflectors 19 are separated by strips or washers 21 upon the top of the asbestos mats 20, so as to leave an air-space between them. The incandescent lights 6 are mounted on cross-boards 22 and 25 in pairs. A double pair of lights is provided at the center in this form herein shown. It will be noted that in this method of mounting the lights may be moved easily, together with their supports. When there is no danger of water entering the box, the windows 23, which have double slides, may be opened for the purpose of ventilation to allow the cooler outside air to draw through the box.

When it is not possible or convenient to use electric lights or, in fact, when the electric-lighting system ordinarily employed may be out of order, other artificial lights—as, for instance, oil-lamps 24—may be employed. These are mounted at the sides of the table and provided with reflectors to properly assist in the illumination of the interior of the box beneath the chart. In Fig. 3 it will appear that I have formed the mounting-boards 25, which carry the electric lights, cut away at the central portions in order not to interfere with the light which comes from the artificial lamps 24 when they are in use.

The use of such a chart-table as I have shown and described enables all the ordinary readings of the chart to be taken directly by the navigator when in his place outside. He often finds it necessary to lay off his course and take measurements upon the chart and for this purpose must be provided with an accessible chart and a strong and steady support. By the use of an etched-glass top any marks or drawings which might be otherwise made directly upon the chart itself may be easily made upon the surface of the glass, so that for convenience in reference the position of the vessel at any time may be marked on the glass, as shown by the cross, Fig. 1, marked "9 p. m." Of course the markings on the glass may be erased at any time by a moist cloth. If at any time it is found difficult to read minute markings on the chart with accuracy, the etched-glass top may be made perfectly transparent by simply moistening the same, thus enabling the navigator to read the chart with the same facility which an ordinary glass top would provide.

To reach the electric lights and mountings inside of the box, the cover may be raised and the supporting-plate in its carrying-frame lifted off from the adjusting-screws. The removal of the frame 7 will take with it, of course, in the form of the structure shown herein, both the rollers and the chart whether the chart is mounted on the rollers or merely slipped across the top of the plate.

This chart is particularly useful on board ship where the wheel is exposed and the pilot is obliged to stand on an uncovered bridge.

I claim—

1. A chart-table having in combination a box, a glass top therefor, a glass support mounted underneath said glass top and in said box, the arrangement being such that a chart may be adjusted between the adjacent surfaces of said top and said glass support, movable means extending outside of said box for pressing the glass support toward the top to hold a chart tightly against the top, and means for throwing light through said glass support to make characters upon a chart used visible from above.

2. A chart-table having in combination an etched-glass top, a glass support mounted underneath the glass top, the arrangement being such that a chart may be placed between the adjacent surfaces of said top and said glass support, adjustable means for pressing the said glass support toward said top to hold in position a chart when inserted between them, and means for throwing light through said glass support to make characters upon a chart used visible from above.

3. A chart-table including a glass top, a frame mounted beneath said top, a glass support carried by said frame, movable means for pivotally supporting said frame whereby the said glass support may be made to press beneath said glass top with uniformity, and means for throwing rays of light beneath said glass support for the purpose specified.

4. A chart-table comprising an inclosed box, a glass top therefor, a frame mounted beneath the top, a supporting-body carried by said frame, adjustable means for forcing said frame and support toward said glass top said frame being pivotally mounted so that said support may be made to press evenly beneath the said glass top.

5. A chart-table comprising an inclosed box, an etched-glass top therefor, a frame mounted beneath the top, a supporting-body carried by said frame, adjustable means for forcing said frame and support toward said glass top said frame being pivotally mounted so that said support may be made to press evenly beneath the said glass top.

6. A chart-table including an inclosing box, a glass top plate therefor, a frame mounted beneath said plate, a body carried by said frame for supporting a chart, and adjusting-screws passing through the bottom of the box and having rounded upper ends engaging in recesses in said frame for the purpose specified.

7. A chart-table including an inclosing box, a glass top plate therefor, a frame mounted beneath said plate, a body carried by said frame for supporting a chart, hooks projecting from said frame, and chart-holding rollers removably carried thereby.

8. A chart-table comprising an inclosing box having ventilating-windows, a glass top, a glass support for a chart, electric-light bulbs mounted beneath said support, a reflector beneath said bulbs, thermal insulating means beneath said reflector, and means for moving the glass support toward or away from the glass top.

9. A chart-table comprising an inclosing box having cover and bottom portions, a glass top plate therefor, a glass plate mounted inside said box and beneath said top plate for supporting a chart, means for forcibly pressing said top and support toward each other to tightly and smoothly hold said chart between them and means for throwing light upward and through the glass support to make the markings on the chart visible from outside the box.

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