

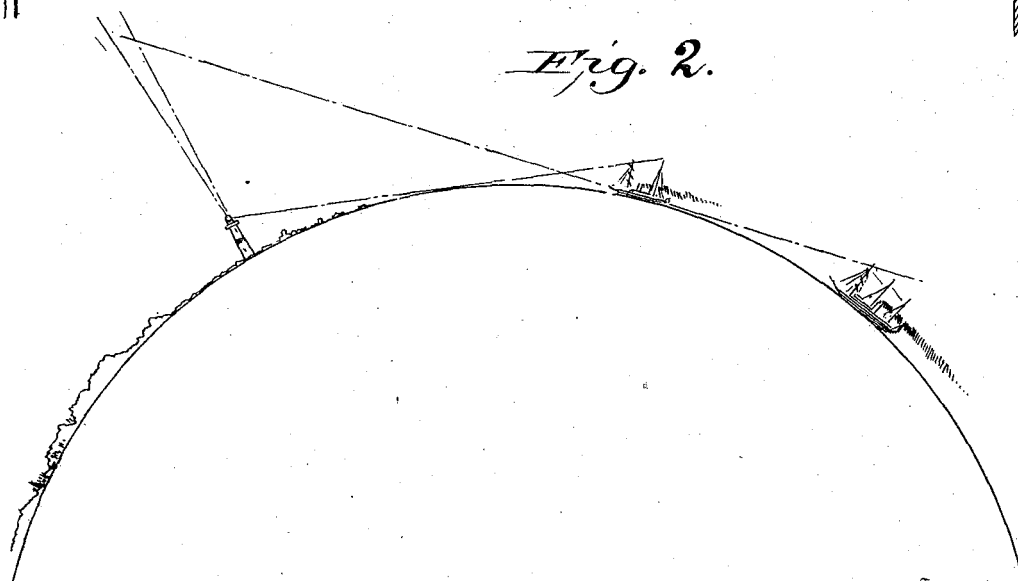
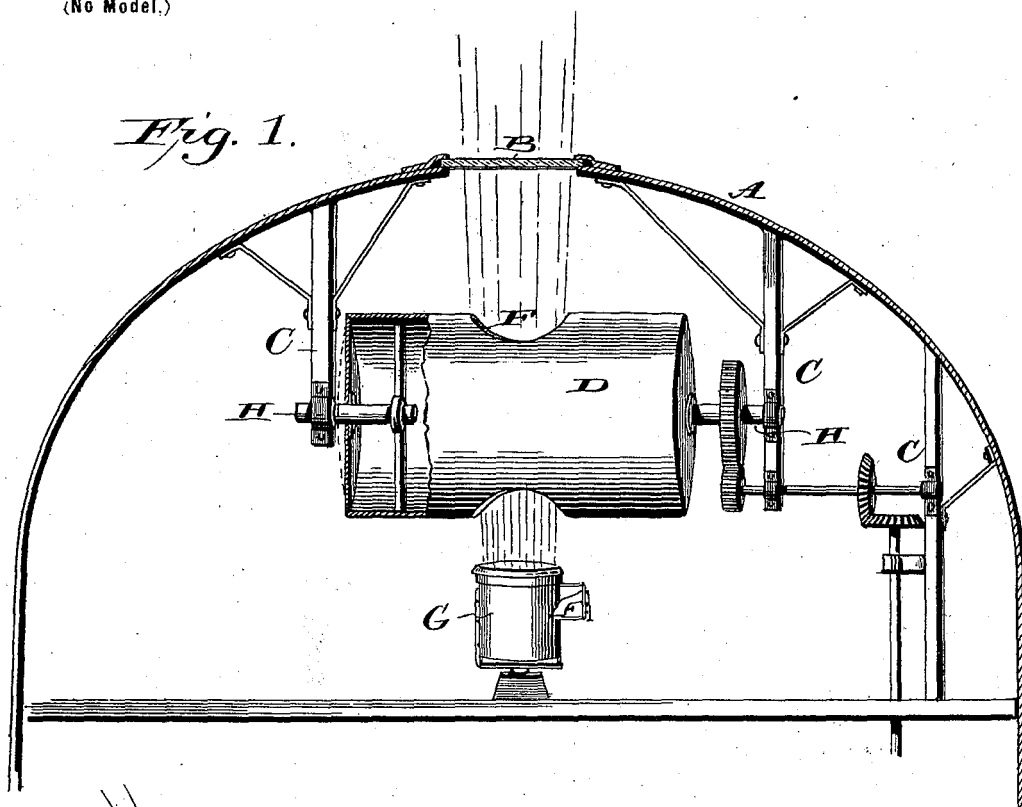
No. 607,780.

Patented July 19, 1898.

J. M. WILLIAMS.
LIGHTHOUSE APPLIANCE.

(Application filed Oct. 7, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

JOHN MUSSON WILLIAMS, OF FLATTS, BERMUDA.

LIGHTHOUSE APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 607,780, dated July 19, 1898.

Application filed October 7, 1897. Serial No. 654,451. (No model.)

To all whom it may concern:

Be it known that I, JOHN MUSSON WILLIAMS, a subject of the Queen of Great Britain, residing at Flatts, Bermuda, have invented certain new and useful Improvements in Lighthouse Appliances; and I do 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in lighthouses, and particularly to the combination with a dome having a glass-covered aperture at its highest point, of a rotary cylinder having diametrically opposite apertures, said cylinder being mounted on suitable brackets and means being provided to revolve the same, whereby an intermittent light may be thrown vertically from a search-light through the said apertures, causing an intermittent flashing of light in the heavens.

It still further consists in the arrangement and combination of parts, which will be more fully described hereinafter.

The object of my invention is to project rays of the search-light used in lighthouses vertically out into space, instead of horizontally outward over the water, as is now done, thereby enabling the light to be seen to a much greater distance than can be done where a horizontal light is used and to enable the vertical light to be distinctly seen on a hazy, dark, and stormy night, where the horizontal light cannot be seen at all or but very faintly.

In the accompanying drawings, Figure 1 is an enlarged perspective view of an apparatus which embodies my invention as it appears in actual use. Fig. 2 is a view showing the comparative distances at which a vertical and a horizontal light can be seen by vessels at sea.

A represents an ordinary lighthouse which has a glass-covered opening B through its top for the purpose of allowing the vertical rays of light to pass therethrough. Suspended from the top of the lighthouse by means of hangers C of any suitable construction is the cylinder D, which has the openings F made through opposite sides for the passage of the

vertical rays of light. As here shown, the cylinder is made to revolve and is placed so that the openings F will come in a direct line with the opening B through the top of the lighthouse and the search-light G, such as is ordinarily used in lighthouses. The cylinder is supported, as here shown, at each end by means of a stub-shaft H, which passes through the end of the cylinder and makes connection with a vertical brace or support I, placed inside thereof, as shown by dotted lines. Stub-shafts are used in contradistinction to a single continuous shaft, because the single shaft would interfere with the vertical rays of light which are sent either continuously or intermittently, as may be desired, through the cylinder D and the opening B through the top of the lighthouse.

If the cylinder is made to revolve, either a driving mechanism such as is here shown may be used or any other that may be preferred, and the power for revolving the cylinder will be generated from any suitable source, such as the clockwork of the machinery used for revolving the horizontal light or by clockwork made to run independently or being connected with the dynamo used to furnish the electric light.

The cylinder D being made to revolve, the two openings F are brought vertically in a line with the search-light G and the opening B through the top of the lighthouse at regular stated intervals, and each time that the openings F are thus brought into line a solid column of light is shot upward into space, and this vertical column of light can be seen to a much greater distance than can be done where the rays are projected horizontally in the usual manner, and the vertical column of light can be seen upon dark, cloudy, and rainy nights, where a horizontal light can only be seen at a comparatively short distance.

To illustrate the comparative advantages of an ordinary horizontal light and a vertical one, suppose a vertical light is projected into the heavens to the height of one thousand feet, which can be easily done with an electric search-light. The lookout on the masthead of a ship one hundred and thirty feet above the level of the sea can see the vertical light at a distance of 49.4 nautical miles, a distance at which no horizontal light can be seen

at any time. Where a horizontal light is used three hundred feet above the level of the sea, a lookout in a ship one hundred and thirty feet above the level of the water can
5 only see the light thirty-three nautical miles away, and this is the greatest distance that an object of that height can be seen from the height of one hundred and thirty feet above the water, owing to the curvature of
10 the earth's surface. If the column of vertical light is two thousand feet high, it can be seen 64.5 miles; at three thousand feet, 76.1 miles; at four thousand feet, 85.8 miles; at
15 five thousand feet, 94.3 miles, and at one mile, 96.6 miles. In addition to the advantage of the vertical light being seen at a much greater distance it can also be seen in hazy or dark and stormy weather distinctly, where a horizontal light can be seen at but
20 a comparatively short distance, and then very imperfectly.

The cylinder will be coated upon its outer surface with a non-reflecting pigment, so that
25 during the interval that the light is obscured the light from the search-light apparatus will not be reflected from the cylinder to any part

of the lighthouse. The intervals between the time at which rays of light are projecting upwardly will serve to indicate which lighthouse it is, as is now the case.

Having thus described my invention, I
claim—

In a lighthouse, the combination with the oval tower with glass-covered openings B therein, and search-light G mounted vertically underneath said opening, of the supports C and stub-shafts H journaled therein, the cylinder D mounted on said stub-shafts, between the search-light and glass-covered
35 opening, and having diametrically opposite apertures F therein, of the brace mounted on the inner end of one of the said stub-shafts and having its ends engaging with the interior wall of the said cylinder, and geared means
40 for rotating the cylinder, as set forth.

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

JOHN MUSSON WILLIAMS.

Witnesses:

W. H. HEYL,
F. REDMOND.