

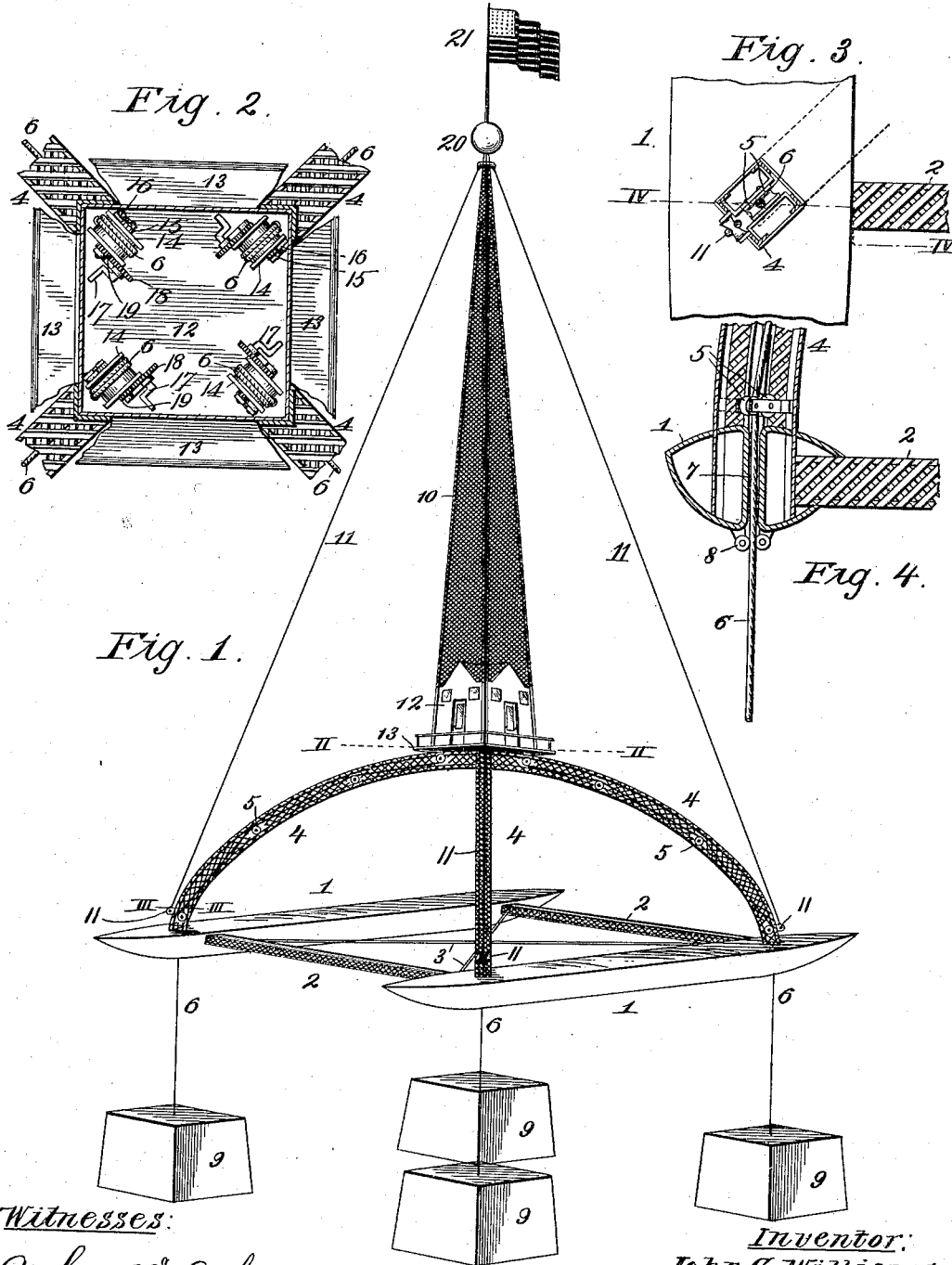
No. 708,287.

Patented Sept. 2, 1902.

J. C. WILLIAMS.
FLOATING LIGHTHOUSE.

(Application filed Oct. 24, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

JOHN C. WILLIAMS, OF KANSAS CITY, MISSOURI.

FLOATING LIGHTHOUSE.

SPECIFICATION forming part of Letters Patent No. 708,287, dated September 2, 1902.

Application filed October 24, 1901. Serial No. 79,802. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WILLIAMS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Lighthouses, of which the following is a specification.

My invention relates to improvements in what are known as "floating lighthouses," which are adapted under ordinary conditions to rise and fall with the water.

The object of the invention is to produce a lighthouse of this type supported by buoys or equivalent structures and embodying means whereby the buoys or their equivalent may be submerged deeply in the water in time of storm, so as to anchor the lighthouse rigidly and firmly in position without regard to the force and height of the waves.

Other objects will hereinafter appear, and in order that the invention may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a perspective view of a lighthouse constructed in accordance with my invention. Fig. 2 is an enlarged horizontal section taken on the line II II of Fig. 1. Fig. 3 is a horizontal section taken on the line III III of Fig. 1. Fig. 4 is a vertical section taken on line IV IV of Fig. 3.

In the said drawings, 1 designates a pair of parallel boat-like buoys or floats, the same being constructed, preferably, of steel and trussed or braced internally (not shown) to withstand the pressure of the water to which they are subjected, particularly in time of storm. Near their opposite ends these buoys or floats are rigidly connected together by latticed or other skeleton girders 2, so as to possess the lightest weight consistent with the great strength required, and these girders are in turn braced by diagonal braces 3, which centrally intersect or cross each other and are attached in any suitable manner to the braces contiguous to the buoys or floats.

4 designates a pair of arches arranged diagonally, so as to intersect each other centrally and span the space between the end of one girder and the opposite end of the other. The lower ends of the arches extend down into said buoys or floats, where connec-

tion is made in any suitable manner with said girders. These arches, like the girders, are of lattice or other skeleton construction to obtain the lightest weight and the greatest strength and also are of tubular form to contain suitable guide-pulleys 5 for the wire cables 6, extending through said arches and through the vertical wells or passages 7, formed in said buoys or floats. Guide-pulleys, as at 8, are also arranged at the lower end of said wells or passages to prevent abrasion of the cable on the buoy or float. Attached to the lower ends of said cables in any approved manner are immense weights or anchors 9, the same being adapted to be embedded by the force of gravity alone, by preference, in the bed of the sea.

10 designates an upwardly-tapering tubular tower, which preferably exceeds twice the height and rests centrally upon the arched frame. This tower is of skeleton or lattice-work construction, so as to present but little surface to the wind, as well as the advantages of strength, rigidity, and light weight, and is braced rigidly by cables 11, secured at their lower ends to the base of the arched frame and at their upper ends to the apex of tower. Constructed in the lower end of the tower and preferably secured to and upon the center of the arched frame is a house 12, surrounded by a suitable porch or platform 13 and provided with doors and windows at every side, these being desirable in order that the lighthouse-keeper may enter or leave at the door at the opposite side from the wind when a storm is in progress. It is intended that he shall obtain access or egress to the house by climbing up or down one of the latticed arches, or a ladder or other device may be used for this purpose, if desired. Located in the corners of the house are large drums 14, to which the upper ends of the cables 6 are attached, said drums being locked against back rotation by ratchet-wheels 15 and pawls 16, the former being attached to the drum and the latter to a suitable support. The drums are adapted to be turned so as to wind or unwind the cables thereon by means of crank-handles 17, and in order to give the operator greater leverage the crank-handles are preferably attached to large gear-wheels 18

and engage smaller gear-wheels 19, attached to the drums or the drum-shafts. This arrangement enables the attendant as the tides rise to pay out the cables gradually, the water elevating the entire floating structure so as to not impose upon the weights or anchors the additional duty of holding said structure down against the elevating action of the water. As the tide recedes the attendant takes up the slack in cables 6 by rewinding the cables on the drums, the pawl-and-ratchet mechanism preventing any possibility of accidental back rotation and consequent slackening of the cables. In this connection it should be stated that should the foundation for the weights or anchors be composed of quicksand, into which they would gradually sink deeper and deeper, the attendant to keep the buoys or floats at the proper depth in the water would pay out the cables gradually to compensate for such movement, it being understood that the cables would necessarily be of length to accommodate such condition of affairs. In time of storm when the violence of the wind and waves would tend to thresh or toss the buoyant structure from side to side, and thereby soon effect its complete destruction, the attendant, irrespective of the condition of the tide, whether in or out, will submerge the buoys or floats to the greatest depth, so as to eliminate entirely any possible rise and fall or other movement of the lighthouse, it being understood in this connection that the weights will resist the tendency of the water to move the lighthouse in any direction.

The lighthouse may be provided with a hoisting or equivalent engine (not shown) adapted for connection with said drums, whereby the operator may wind up sufficient of the cables upon the drums to submerge the buoys or floats below the plane to which the water may be lashed in the violence of the storm. In fact, it will be absolutely essential that some type of engine or motor shall be employed for this purpose. The hand-drums are illustrated herein for convenience of illustration merely, and while they may be practical under normal conditions it is obvious that a man's efforts to effect the deep submergence of the buoys or floats would be futile without regard to the condition of the sea. As stated, the tower is of tubular or hollow construction, so as to enable the keeper to climb by steps or ladders (not shown) until he has access to the surmounting globe 20, wherein is adapted to burn the light which warns mariners. A flag, as at 21, may surmount the globe, if desired.

From the foregoing it will be apparent that a structure of the character described can be constructed in sections and conveyed on barges to the point where the lighthouse is to be erected and that with suitable ladders, trucks, and other machinery the work of put-

ting the parts together could be done in a comparatively short time. The structure of course will be painted at suitable intervals to preserve it from corrosion.

While I have illustrated and described the preferred embodiment of the invention, it is to be understood that I reserve the right to make all changes in form, proportion, detail construction, and organization which properly fall within the spirit and scope of the invention.

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

1. The combination of a buoy or float supported lighthouse, embracing buoys or floats, intersecting arches connecting the same, suitable braces for the buoys or floats and arches, an upwardly-tapering tower centrally surmounting the arched frame, and braces connecting said arches near their ends with said tower, weights or anchors, cables extending up from the same to the lower ends of the arches, pulleys guiding said cables to the base of the tower, and means located therein for taking up or paying out said cables, substantially as described.

2. The combination of a plurality of buoys or floats provided with vertical passages or wells, braces connecting said buoys or floats, intersecting arches connecting said floats or buoys and the ends of said braces, said arches being of tubular construction, guide-pulleys arranged in said arches and at the lower ends of said wells or passages, a hollow tower centrally surmounting the arches, and suitably braced, a globe or lamp surmounting the tower, a house formed at the base of the tower and containing winding-drums, cables attached to said winding-drums and extending over said pulleys and down through said wells or passages, weights or anchors attached to the lower ends of said cables, means to turn said drums in one direction so as to wind up the cables, and means for preventing the accidental back rotation of the drums, substantially as described.

3. A lighthouse, comprising a buoy or float supported tubular frame, a tower mounted on said frame, and provided with a living-room, cables suitably guided through said tubular frame, and into said room, weights resting on the bottom of the sea, and attached to the lower ends of said cables, and means for winding up or paying out said cables in said room, so as to accommodate the falling or rising of the water.

4. A lighthouse comprising a buoy or float supported structure provided with vertical passages or wells at suitable points, intersecting tubular arches registering at their lower ends with said wells or passages, and suitably braced, a skeleton tower surmounting the arches and provided with a living-room, cables connecting the upper part of the

tower with the lower ends of the arches, cables suitably guided through said tubular arches and said wells or passages, weights attached to the lower ends of said cables, and
5 means within said room for shortening or lengthening said cables, substantially as described.

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

JOHN C. WILLIAMS.

Witnesses:

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