2 Sheets--Sheet 1.

J. B. STONER.

Floating Light-Houses.

No. 138,292. Patented April 29, 1873.

Fig: 1

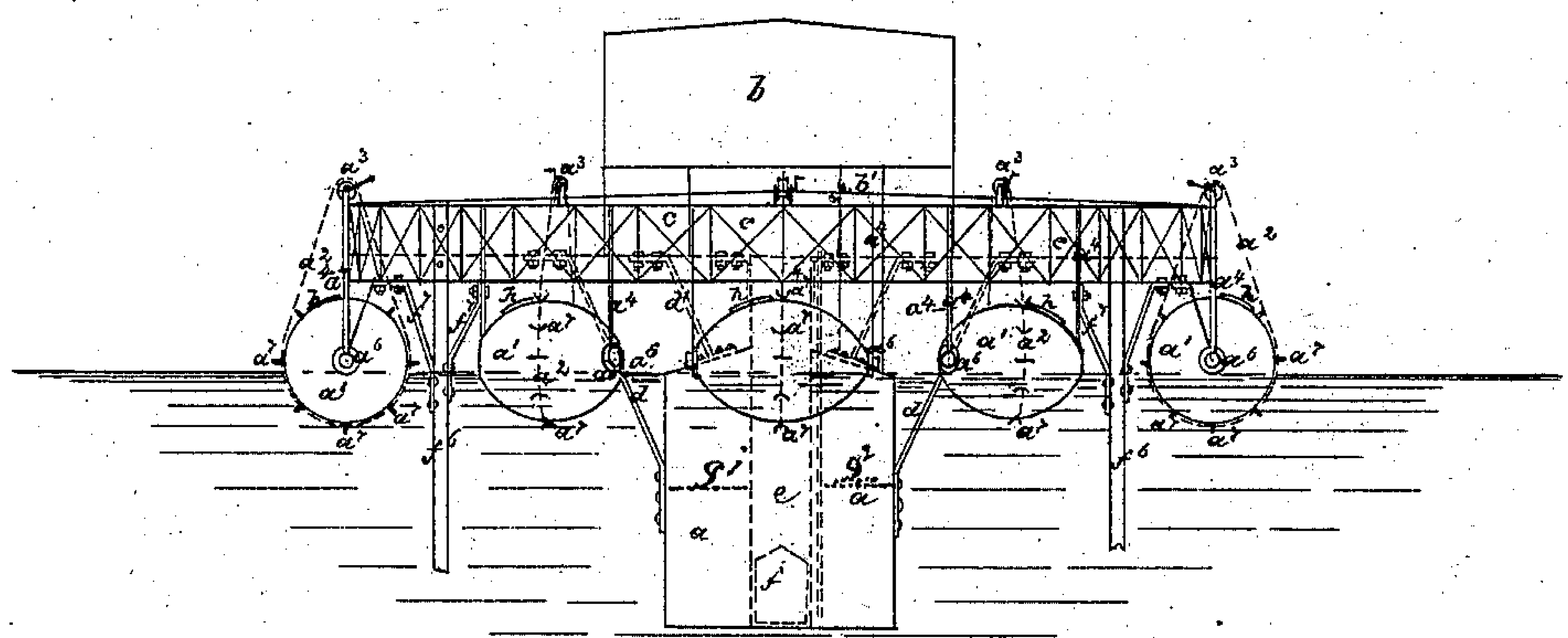


Fig: 2

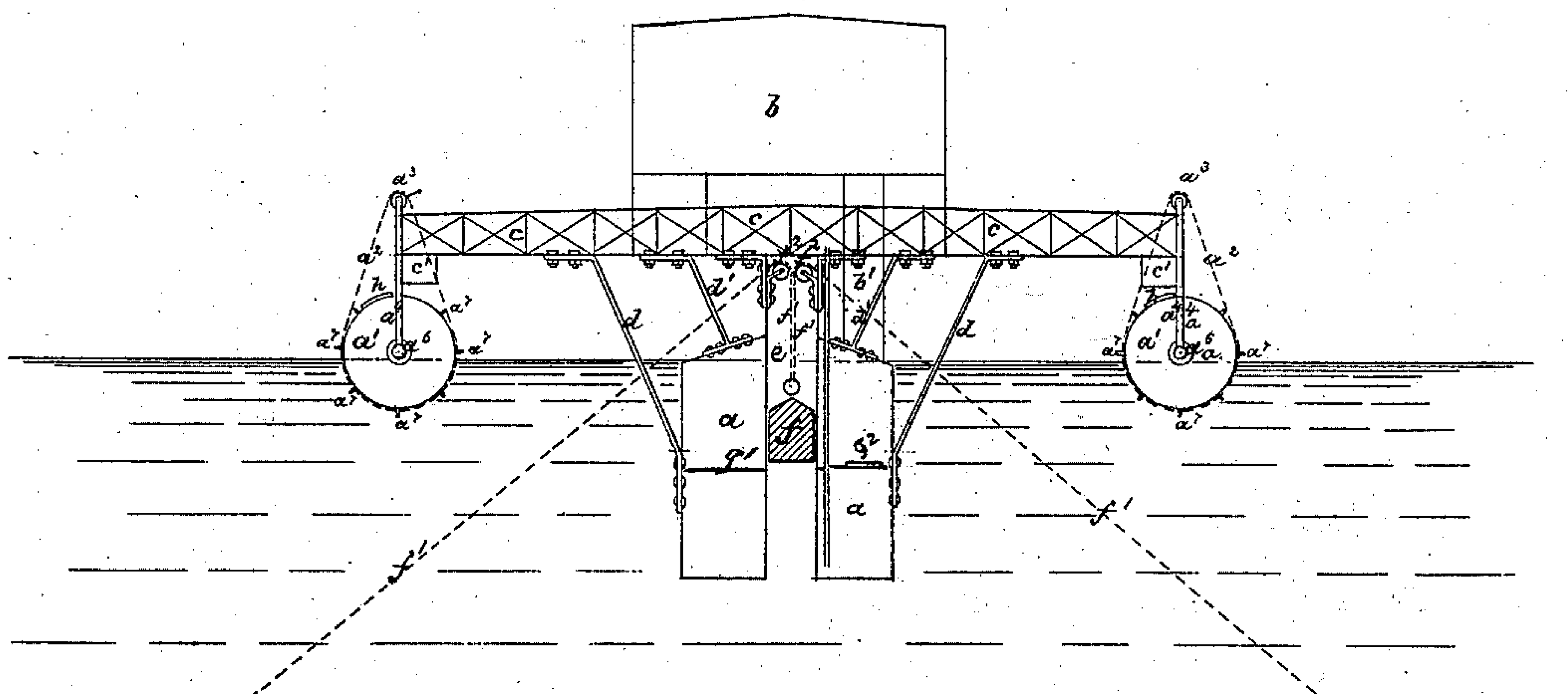
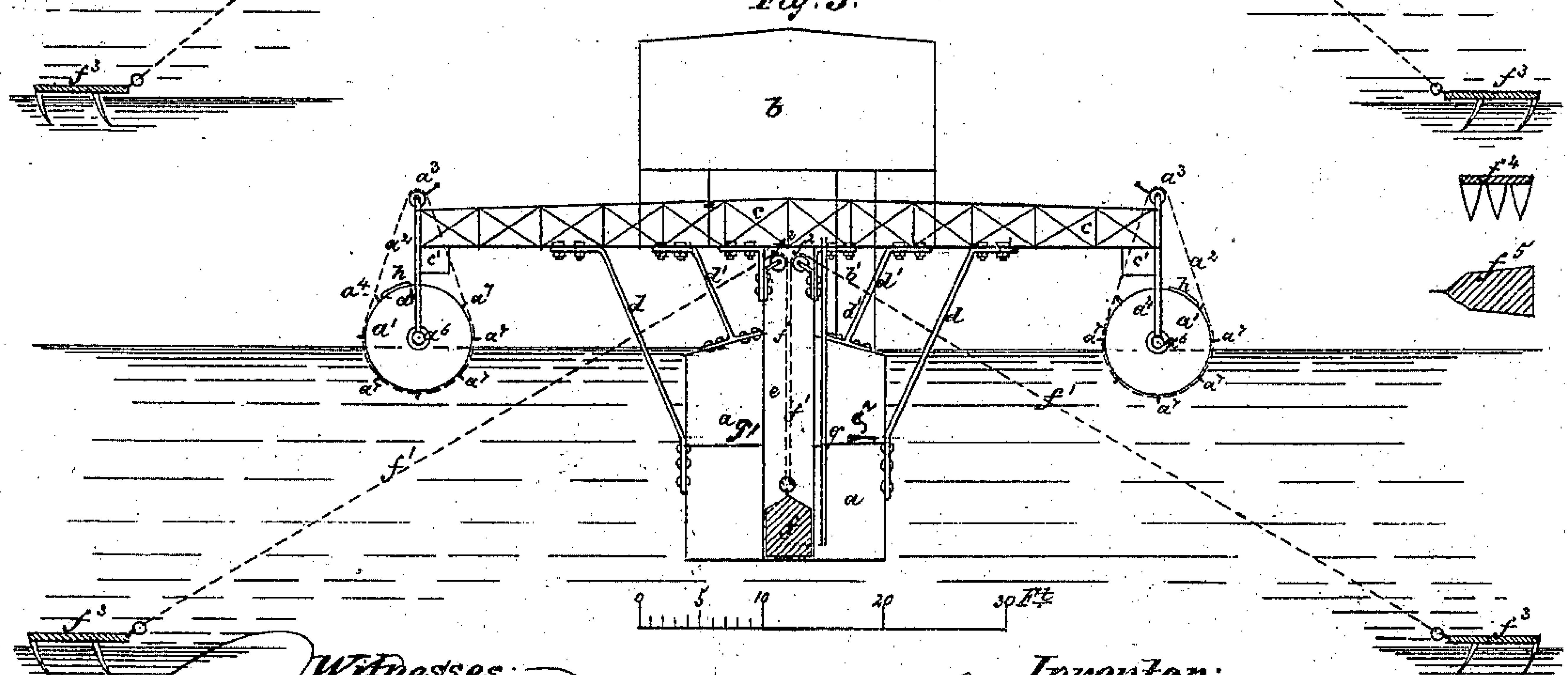


Fig: 3.



Witnesses:

Inventor:

John B. Stoner.

2 Sheets--Sheet 2.

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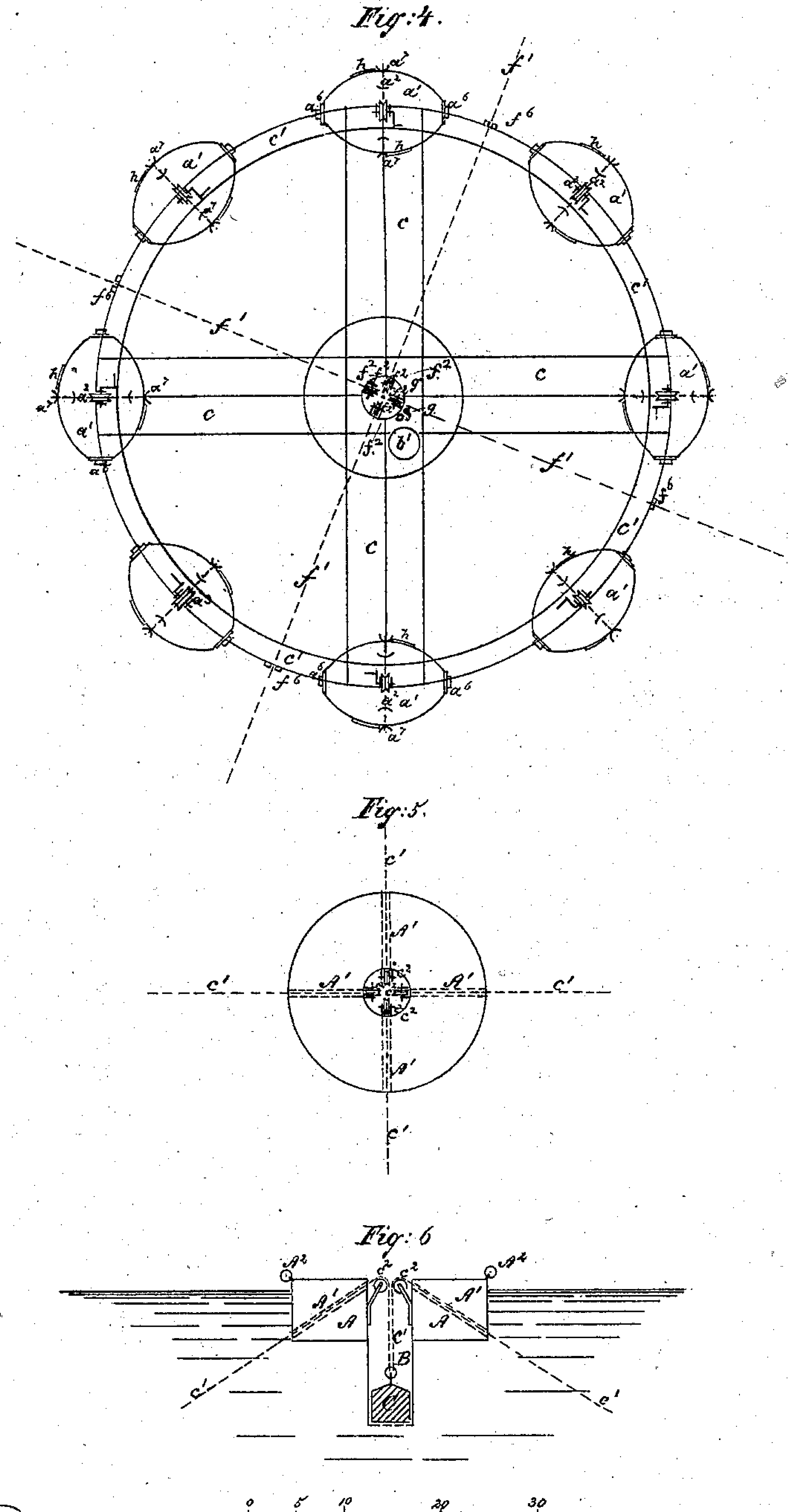
Fig: 4.

Fig: 5.

Fig: 6



Witnesses:

Inventor:

John B. Stoner.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JOHN B. STONER, OF NEW YORK, N. Y.

IMPROVEMENT IN FLOATING LIGHT-HOUSES.

Specification forming part of Letters Patent No. **138,292**, dated April 29, 1873; application filed March 27, 1872.

To all whom it may concern:

Be it known that I, JOHN BENJAMIN STONER, of New York, in the county of New York, in the State of New York, have invented a new or Improved Float for Floating Telegraph Light-House and Life-Boat Stations, Hospitals, Batteries, Magazines, Mooring-Buoys, and other similar purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

Th nature of my invention consists in a circular skeleton frame-work or bridge made of iron or other suitable material, and hereinafter known and designated as the circular bridge, which will vary in diameter from thirty to three hundred feet, more or less, with two skeleton bridges, built of iron or other suitable material, forming a cross in the circular bridge. In the center and underneath the cross of the bridges is a circular buoy, made of iron or other metal, of from ten to seventy-five feet in diameter, more or less, and from five to twenty feet below the water-line, and about two feet above the water-line at the center of its arched top. The size of this center buoy will always be determined by the diameter of the float, and the use for which it is intended. Under the circular bridge are oblong or globular buoys from six to thirty feet long and from three to fifteen feet in diameter, more or less, with journals at each end resting in bearings attached to and extending below the circular bridge, say, about eight feet, more or less. Said oblong or globular buoys form the beam of the said improved float, and are from five to twenty feet apart, more or less. In constructing floats of great diameter additional oblong or globular buoys can be placed at distances varying from twelve to thirty feet apart underneath the cross-bridges between the central buoy and the outer buoys or beam of the float, thereby taking off a portion of the weight that would otherwise rest on said bridges; and for floating batteries, magazines, hospitals, dock or piers, the number and size of said oblong and other buoys will be determined by the size of said floating structure. In the center of the main buoy is a tube of from two to six feet in diameter, and in length equal to the depth of said center buoy, and extending upward to the cross-bridges. The object of said tube is to contain and steady a weight ranging from one to one hundred tons, more or less, the number of tons being determined by the size and weight of said float, and the current of the stream or tide in which it is to be anchored. The object of said weight is to overcome or prevent all lateral motion by having the mooring-chains pass over a pulley or traveler at the upper end and inside the said inner tube; thence down to the weight and attached thereto at low tide; then, as the tide flows and the float rises, the weight hangs on the mooring-chains, (being three or more,) and rises proportionately to the depth of the water and length of mooring-chains, and as the tide ebbs the said weight settles down, keeping the float in the same position laterally; and, as the mooring-chains are always kept taut by said weight and pass through a slotted iron at the outer edge of said circular bridge or float, as shown, there can be no circular motion to the float; and hence floating hospitals, batteries, piers, docks, &c., can be supplied with water and gas from shore, and by this mode floats can be constructed for building bridges and for wrecking purposes, as they will always remain in the same position laterally.

The main advantages gained by constructing a circular skeleton float as described are, first, it offers very little resistance in the water, as there are no straight lines or sides to it, and it can be built of such diameter as to give it great stability and capacity for carrying very high frame-work for lights and other signals; secondly, owing to its peculiar construction, every portion of it, except the main center buoy, can be painted and repaired at will. The main center buoy is fastened to the cross-bridges by screw bolts and nuts, and can be replaced with a new one when required, while for hospitals, magazines, &c., it is free from dampness, as the floor will be from six to eight feet above the water, thus allowing a free circulation of air to pass underneath; and, for batteries, if half the buoys were destroyed the other half would keep the battery afloat; while in all cases baths can be attached, and where floats are built for pleasure resorts or places of amusement the whole inner space underneath can be used for bathing purposes.

In order that my invention may be more fully understood, I now proceed to explain the accompanying drawing which is intended to illustrate the same.

Description of Drawing.

Figure 1, Sheet 1, is an elevation of the improved float. Fig. 2, Sheet 1, is a vertical sectional view of the same at high tide. Fig. 3, Sheet 1 is a vertical section of the same at low tide. Fig. 4, Sheet 2, is a horizontal-plan view of the whole omitting the telegraph-office. Fig. 5, sheet 2, is a horizontal plan view of a detached circular float; and Fig. 6, Sheet 2, is a vertical section of the same.

The same letters in Figs. 1, 2, 3, and 4 apply to the same parts wherever they appear.

a is a central water-tight buoy under water, or nearly so, having a tube, e, passing up through and about six feet above it and connected to the cross-bridges c at their junction. This buoy is secured to the cross-bridges c by braces d and d', which braces also assist in supporting the bridges c. b is the telegraph office or station, and in cases of hospitals or floating piers for bathing and amusement the office or cabin portion of the structure can be made from ten to thirty feet more in diameter than the circular bridge or frame-work. b' is a tube, through which ingress and egress are had into the buoy a. c are the bridges across the circular float, and form a cross in the center of same, supporting the telegraph-office, lighthouse, &c., being in turn supported by buoy a, which is directly underneath said cross formed by the bridges c. c^1 is a circular bridge to which the several outer oblong or globular buoys are secured, and on which the ends of the bridges rest. a^1 are the oblong or globular buoys, each having an endless chain, a^2, passing around them and over windlass a^3, for the purpose of turning them around when required for cleaning, repairing, and painting. a^4 are iron or metal uprights, the lower ends of which receive the journals a^6 at the ends of the buoys a^1. The upper ends of said iron or metal uprights are securely fastened to and support the circular bridge c^1. a^7 are semicircular or V-shaped metal bearings, in which the endless chains a^2 work, and are kept in place. f is a a weight suspended in tube e by three or more mooring-chains, f^1, which pass over the metal travelers or pulleys f^2 near the top and inside of tube e, and are attached at their other ends to anchors f^3, of which anchors f^4 is an end view, and f^5 a plan view. These mooring-chains f^1 are passed through slots formed in iron uprights f^6, attached to and in line with the exterior of the circular bridge c^1. The object of this latter arrangement is to prevent circular motion of the float. The object of the central weight f in being attached to the several mooring-chains is to prevent lateral motion or drifting, and thereby keep the float or station in the same position during the variations of the tide.

Fig. 2, Sheet 1, shows the position of the weight f in the tube e at high tide, and Fig. 3, Sheet 1, shows its position in said tube e at low tide. The weight f hangs on the several mooring-chains, and is regulated so as to keep them all taut, therefore, when the float manifests a tendency to drift, the proportionate amount or the whole of the weight f (varying from one to one hundred tons depending on the size of the float and the swiftness of the current) is transformed to one mooring-chain. Supposing the said weight to weigh twenty tons, the whole of said weight must be raised and borne by the mooring-chain opposite the line of motion before the float could drift. Should an unusual heavy sea strike the float and cause it to drift for an instant, the weight f would at once counteract the motion and bring the float back to its former and normal position, and again rest upon all the mooring-chains; but the weight may be sufficiently heavy to prevent any drifting motion. By this arrangement there is much less risk of the mooring-chains parting, inasmuch as the float never gains any momentum by currents or tide; therefore, there can only be the simple strain on the moorings arising from the currents and the force of the wind and waves, while without this improved arrangement, by the ordinary method of mooring, the current or tide, or the force of the wind and waves, will cause the floating body to drift the whole length of the slack of the mooring-chains caused by the difference between high and low tide. The momentum thereby acquired, together with the force of the currents, &c., will render additional strength in the mooring-chains necessary to thus suddenly arrest the drifting of the floating structure. Whatever may be the weight required to prevent lateral motion, there will be no additional strain on the bridges c, as the increased weight is borne by proportionately enlarging the buoy a. g is a tube passing from bridge c into and near the bottom of buoy a, through which the water is pumped out of the lower compartment of the said buoy a in case of leakage. g^1 are partitions or middle decks in buoy a dividing it into two compartments. The upper part is used for a general store-room, while the lower compartment will be used for equalizing the carrying capacity of the float by admitting water into it (by a valve or other means provided) when the store of coal and other supplies are light, and then pumping out the water when large stores or supplies of coal or provision are taken on. h are hatchways formed in the several floats for ingress thereto and egress therefrom. g^2 are hatchways in said partition or middle deck, through which ingress and egress is had into the lower compartment of buoy a.

In Figs. 5 and 6, sheet 2, the same letters apply to the same parts.

A is a circular buoy with sufficient floating capacity to carry itself and the weight that may be required to keep it in position while vessels are moored to it. A^1 are small tubes for carrying the anchor-chains through buoy A. A^2 are rings, to which cables or chains are attached while mooring to it. B is the tube for steadying and protecting the weight C. C^1 are the mooring-chains. C^2 are the pulleys or travelers the chains pass over.

Having thus fully described the nature of my invention, and in what manner the same is to be performed without binding myself to the exact forms or the dimensions specified herein or shown in the drawing, I claim as new and desire to secure by Letters Patent—

1. The small or outer buoys a^1 arranged to turn on axles or journals, in combination with an endless chain for turning them, substantially as described.

2. The combination of a central buoy, a, and circumferential buoys a^1 operating as breakwaters therefor with a bridged platform, constructed substantially as described.

3. The mooring-chains f^1 applied to the central buoy of the float a, and loaded so as to operate substantially as described.

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Witnesses:
RUFUS K. MCHARG,
THEODORE CROMMELIN.