

(No Model.)

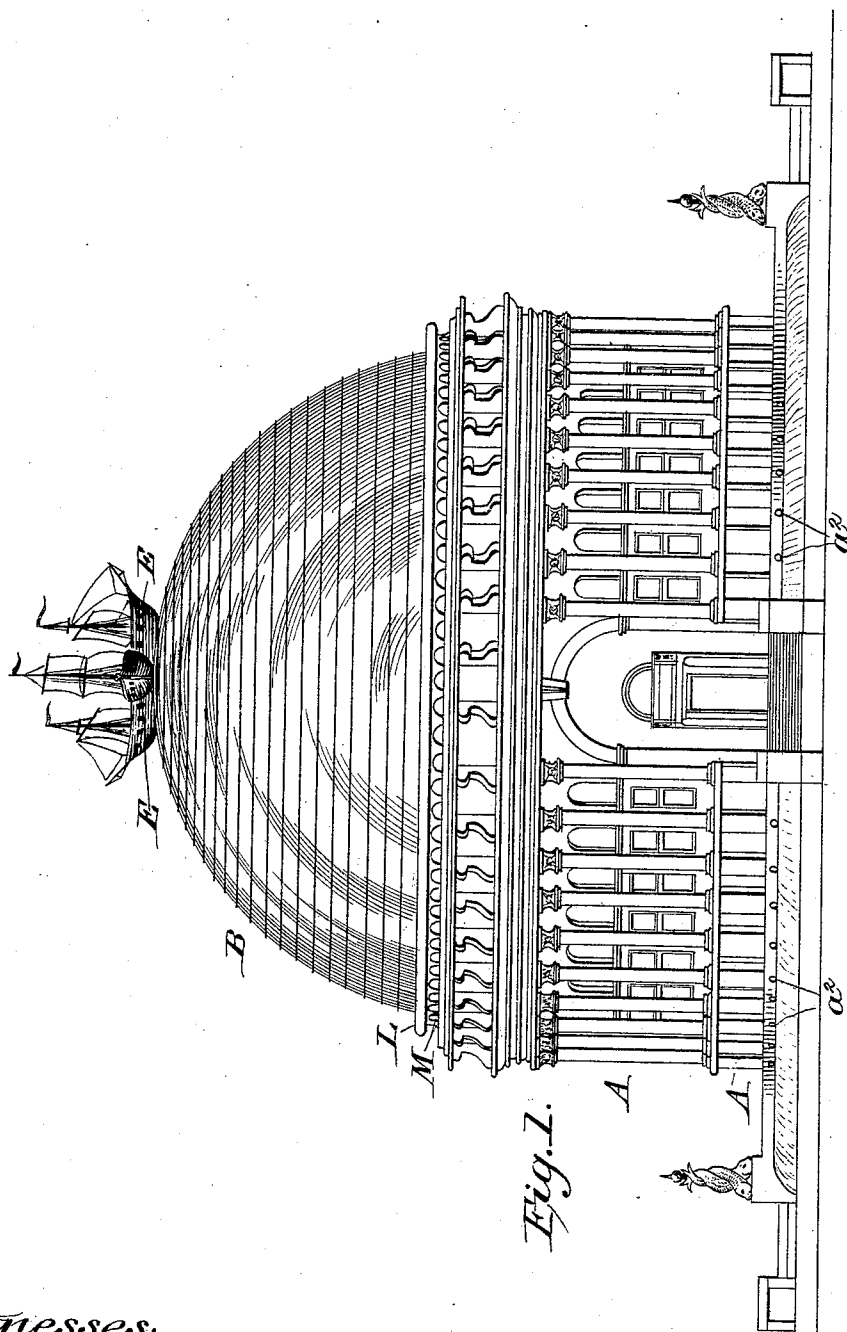
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W. F. SMITH.

COMBINED BUILDING AND WATER TOWER.

No. 446,897.

Patented Feb. 24, 1891.



Witnesses:

Alfred L. Brown.  
Calvin G. March

By

Inventor.

William F. Smith.  
Charles J. Brown,  
Att'y.

(No Model.)

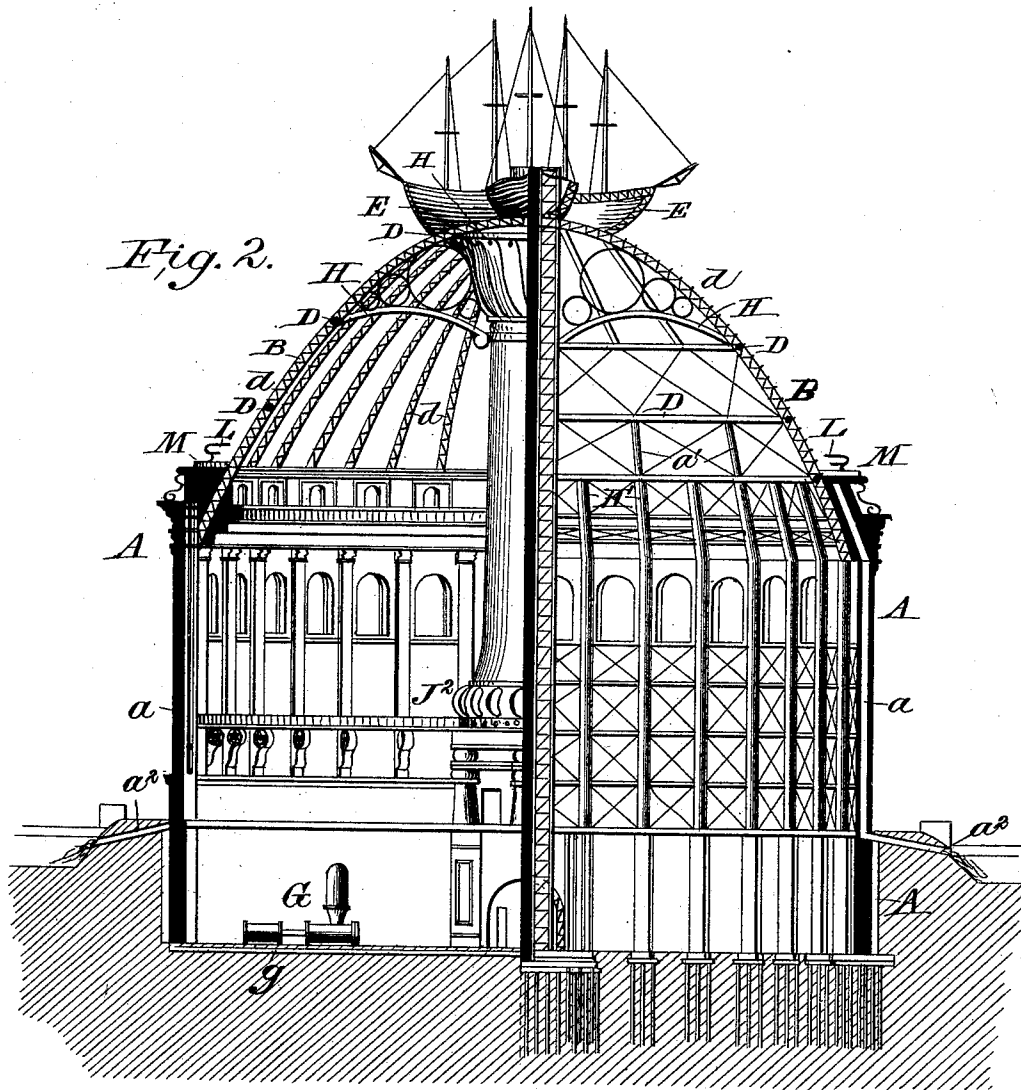
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W. F. SMITH.

COMBINED BUILDING AND WATER TOWER.

No. 446,897.

Patented Feb. 24, 1891.



Witnesses:

*John L. Brown,*

*Calvin C. March*

Inventor:

*William F. Smith*

By *Charles J. Brown,*

*Att'y.*

(No Model.)

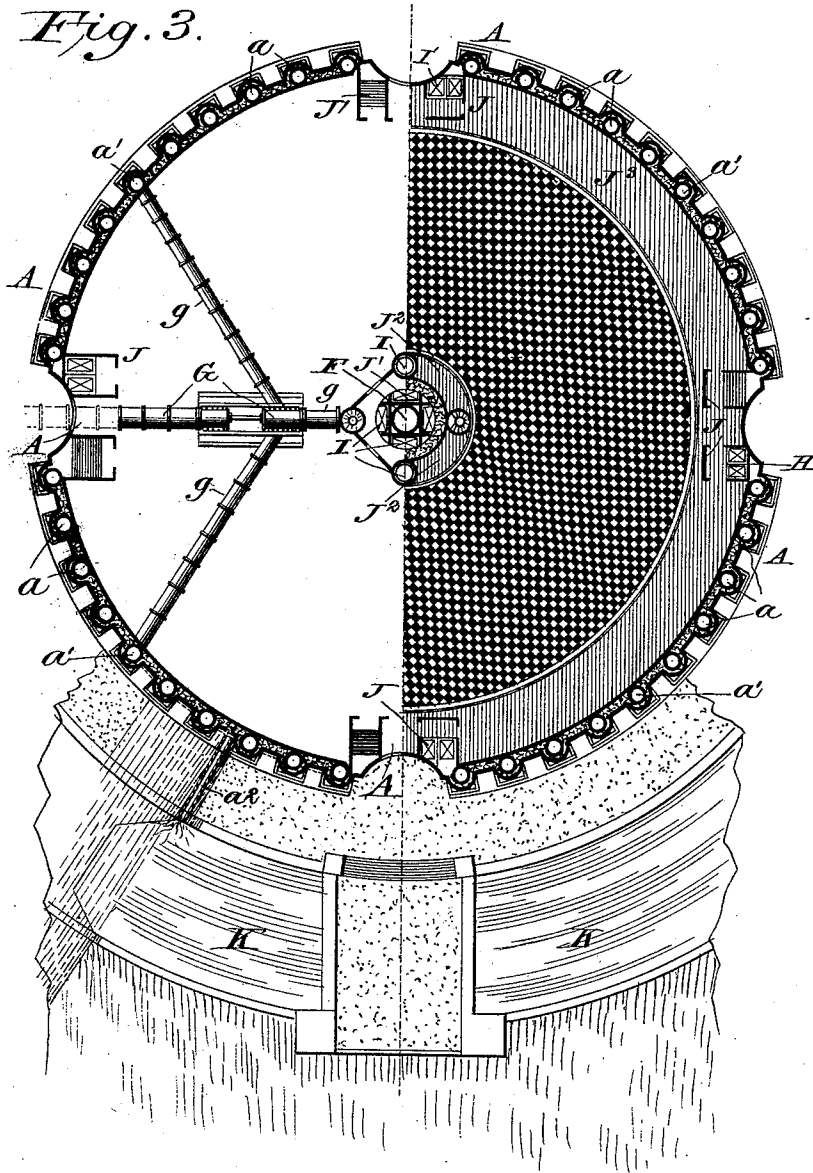
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W. F. SMITH.

COMBINED BUILDING AND WATER TOWER.

No. 446,897.

Patented Feb. 24, 1891.



Witnesses.

Thos L. Brown.  
Calvin C. Marsh

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William F. Smith

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(No Model.)

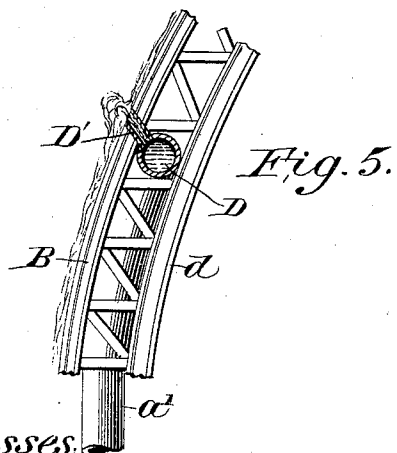
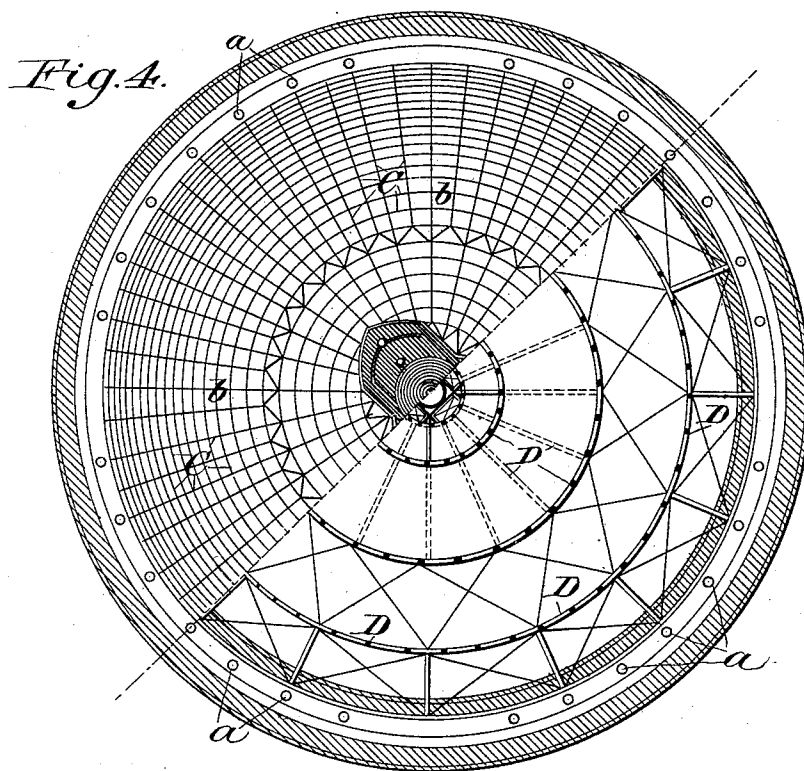
4 Sheets—Sheet 4.

W. F. SMITH.

COMBINED BUILDING AND WATER TOWER.

No. 446,897.

Patented Feb. 24, 1891.



Witnesses:

Flora L. Brown.  
Calvin C. March

By

Inventor:

William F. Smith.

Charles J. Brown,  
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# UNITED STATES PATENT OFFICE.

WILLIAM FITZROY SMITH, OF CHICAGO, ILLINOIS.

## COMBINED BUILDING AND WATER-TOWER.

SPECIFICATION forming part of Letters Patent No. 446,897, dated February 24, 1891.

Application filed July 11, 1890. Serial No. 358,469. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM FITZROY SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Building and Water-Tower, of which the following is a specification.

The object of my invention is to construct a building the plan whereof is circular and the walls of which are surmounted by a dome which shall be especially suitable during the summer season of the year for the placing therein of articles demanding a uniform and low temperature—as, for instance, an aquarium with its contents or a horticultural garden; to construct a building the inside of which shall be especially agreeable to persons and animals during the summer season of the year by reason of its low and uniform temperature; to construct a building which shall present both upon the outside and on the inside thereof a novel and beautiful appearance and a utility independent of and in addition to its utility as a water-tower; to construct a building which may serve for the display of water, perfume, or other liquid as such liquid is exposed to view over the exterior of the dome of the building; to construct a building which, by reason of the utility thereof and its appearance, is adapted to be placed among and form one of several exposition-buildings during the holding of a fair, exposition, or exhibition, while at the same time such building will form a water-tower having the necessary stand-pipes therein and the necessary machinery connecting with such stand-pipes, whereby water may be forced into such stand-pipes in such a manner that the water may be supplied therefrom for fountains and other necessary water-supply in and about a fair, exhibition, or exposition grounds.

It will be evident to one skilled in the art of building that a building of the character herein described may be constructed of any desired size, from a structure, for instance, in which the diameter of the circular walls supporting the dome shall be hundreds of feet, the height of such walls extending upward of a hundred feet, and the dome composed of many pieces of iron and glass, and

in which the stand-pipe shall be of sufficient height and size to supply large quantities of water over a wide area of ground, in which grounds may be placed buildings and fountains of considerable height, to a structure duplicating in appearance the large structure just described, except in size, and such smaller structure may be so extremely small as to be adapted to be placed upon a center table or other support.

I have illustrated my invention by the drawings accompanying and forming a part of this application, in which—

Figure 1 is an elevation of my device; Fig. 2, a vertical cross-section with the covering and galleries removed from the structural parts on the right side of the figure; Fig. 3, a horizontal cross-section of the walls of the combined building and water-tower, showing a plan view of the ground floor to the right-hand side of the figure and of the basement with some of the working parts required on the left-hand side; Fig. 4, a plan view of the dome of the structure with a portion of the outer covering removed therefrom on the lower right side of the figure, showing the structural parts thereof; and Fig. 5 is a sectional view of circular pipes supplying liquid to the upper surface of the dome and an elevation of a small section of the truss supporting the dome.

Like letters refer to like parts throughout the several views.

A are the walls of the combined building and water-tower.

$a\ a'$  are vertical pipes forming a part of the walls A. The pipes  $a\ a$  are built into the walls A in the same manner and are of the same kind as pipes  $a'\ a'$ ; but the different connections, hereinafter set forth, made with pipes  $a\ a$  from those made with pipes  $a'\ a'$  adapt them to serve a different purpose—to wit, pipes  $a\ a$ , forming a part of the supply system for the conveying of water to the top of the dome and pipes  $a'\ a'$  forming a part of the discharge system for conveying such water from the dome, both of such pipes being, however, supply-pipes in relation to the purpose of the device as a water-tower, the dome and the display of water thereon becoming an incident thereto.

$a^2$  are pipes extending horizontally from the

foot of vertical pipes *a a* outward therefrom and to the fountain, building, or body of water designed to be supplied with water from my combined building and water-tower.

5 B is the dome of the structure. The external part of dome B is composed of plates of glass *b b*, which are set in frame C.

D are circular pipes extending around the dome B underneath the external surface thereof, and are connected with the vertical pipes *a a* F, hereinafter described, so as to receive liquid from such vertical pipes.

10 D' are short pipes from pipes D D to the upper surface of the dome B, forming openings for the discharge of the contents of the pipes D D upon the outer surface of the dome.

15 *d d* are arches or trusses, upon which the circular pipes D D rest. Arches *d d*, in combination with the circular pipes D D, form the support of the dome B.

20 By reference to Fig. 2 it will be observed that that portion of the frame C forming rings extending horizontally around the dome above the surface of the glass *b b* thereof offers an impediment to liquid falling over and down such dome B.

25 E E E are structures mounted upon the dome near the center thereof, and represent each the hull of a sailing-vessel or that part of a hull of a sailing-vessel above the water-line when a sailing-vessel is floating upon the water.

F is a vertical pipe in the center of the building.

35 G G are pumps.

*g g* are pipes extending from pumps G G to vertical pipes *a' a'*.

*g' g'* are pipes extending from pumps G G to vertical pipe F.

40 H H are pipes extending from vertical pipe F to the circular pipes D D.

H' H' are pipes extending from vertical pipes *a' a'* to one or all of the circular pipes D D, as preferred.

45 I I are elevators near the center of the building and J J are elevators near the circular wall of the building.

J' is a column formed by a casing surrounding the standing pipes F and elevators I I. 50 Column J' is designed to serve as a cover around the elevators I I and vertical pipe F mainly; but there is illustrated a gallery J<sup>2</sup>, secured thereto in Figs. 2 and 3.

J<sup>3</sup> is a gallery supported by the wall A.

55 K is a body of water surrounding the building, and from which pipes may extend to the pumps, whereby such pumps may be supplied with water. It will be observed that when the pipes *a<sup>2</sup> a<sup>2</sup>* extend to this body K of water 60 the water will make simply a circuit from the body K into the pipes connected with the pumps, up such pipes, out upon the outer surface of the dome B, down the pipes *a a*, out through pipes *a<sup>2</sup> a<sup>2</sup>*, and back to the body 65 of water K.

L is a shield, serving as a kind of collect-

ing-gutter for the water falling over and down the dome B and guiding it to the pipes *a a*. This shield L also serves as a shade or shield, back of which may be placed lights of any 70 kind for illuminating the promenade M, which extends around the building at the base of the dome B.

The manner of the operation of my device is as follows: Pumps G G are actuated, and 75 vertical pipes *a' a'* and F, with the connecting-pipes H, H', and D D are thereby filled with water. Further pumping of water by these pumps G G causes a discharge thereof from the top of the pipe F and from the pipes 80 *a' a'*, and from the connecting-pipes H, H', and D D, through discharge-pipes D' D', to the outer surface of the dome B. Dome B is constructed so as to be water-tight, and such water so pumped upon the outer surface 85 thereof will fall or run over and down the dome into the collectors L L, and from thence will flow into vertical pipes *a a*. As the water falls over the dome B its movement is obstructed and impeded by that part of frame 90 C forming horizontal circular rings extending around the dome and above the surface of the glass, and by supplying the proper amount of water through the pumps G G and the connecting-pipes a comparatively even 95 sheet of water may be made to extend over the entire outer surface of the dome B, in appearance at least, and the structures E E E will have the appearance of sailing-vessels floating in water. The water falling from 100 the dome B and guided thereby into the stand-pipes *a a* will, if not allowed to escape through pipes *a<sup>2</sup> a<sup>2</sup>*, fill or partially fill such stand-pipes, and may be conveyed through these pipes *a<sup>2</sup> a<sup>2</sup>* to the place or places where 105 it is desired to use it. All the advantages obtained at the point of delivery of water from an ordinary stand-pipe containing water of the same height as is the water in these stand-pipes will be thus attained. 110

It is evident that I do not limit myself to the precise number of vertical pipes illustrated in the drawings, and that a greater or less number of such vertical pipes may be placed in the central column of the building, 115 or in the outer wall, or as many distributing-pipes in the roof thereof, and that such of these vertical pipes may be employed for forcing water to the dome of the building as are necessary, and such for the delivery of water 120 from such dome or for stand-pipes as desired.

The dome is constructed of glass plates set in the frame C, as described, so that water or other liquid upon the outer surface of the dome and flowing over it may be viewed from 125 within the building, and also that the cooling effect of the flowing water may be utilized in lowering the temperature of the interior of the building during the summer season of the year. At the same time the dome is water- 130 tight, so that no liquid shall fall within the building.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a combined building and water-tower, 5 vertical pipes forming a portion of the walls of the building, such pipes adapted to convey water up or down therein, a vertical pipe in the center of the building, a dome resting upon the walls and upon the central vertical 10 pipe, circular pipes extending horizontally around the dome, pipes extending from the horizontal circular pipes to the outer surface of the dome, and other pipes connecting with the vertical central pipe and with some of 15 the vertical pipes in the wall of the building, whereby water may be forced through such last-named vertical pipes out upon the outer surface of the dome, and extending over the surface of the dome be collected in the other 20 of the vertical pipes in the wall of the building, and passing through such last-named vertical pipes be conveyed from the base of the dome and from the building, substantially as described.

2. In a combined building and water-tower, 25 vertical pipes forming a portion of the walls of the building, such pipes adapted to convey water up or down therein, a like vertical pipe in the center of the building, a dome 30 resting upon the wall and upon the central vertical pipe of the building, such dome being composed of plates of glass supported in a frame, and such frame having horizontal rings above the outer surface of the glass 35 extending around the dome, circular pipes extending horizontally around the dome and having discharge-pipes extending therefrom to the outer surface of the dome, and also having connecting-pipes extending to the

vertical pipe in the center of the building 40 and to some of the vertical pipes in the wall of the building, pumps connecting with such vertical pipes, and a collecting-shield for guiding water from the base of the dome into the other vertical pipes in the wall of the build- 45 ing, whereby water may be forced upon the outer surface of the dome, extend over such dome to the base thereof, and be viewed from within the building through the glass portion of the dome as it flows over it, and be 50 conveyed from the building through some of the vertical pipes in the wall of the building, substantially as described.

3. In a combined building and water-tower, 55 vertical pipes adapted to form supply and waste-water pipes forming a portion of the walls of the building, vertical supply-pipes in the center of the building, a dome resting upon the walls of the building and upon the central pipe, structures resting upon the dome 60 representing a portion of the hull of sailing-vessels, circular pipes extending horizontally around the dome and having discharge-pipes extending therefrom to the outer surface of the dome, and also having supply-pipes ex- 65 tending to the vertical supply-pipes, and pumps connected with the vertical supply-pipes, whereby water may be forced upon the outer surface of the dome, extend over such dome to the base thereof, and be conveyed 70 therefrom, and thereby an appearance may be given such structures similar to the appearance of sailing-vessels floating upon water, substantially as described.

WILLIAM FITZROY SMITH.

Witnesses:

FLORA L. BROWN,  
CHARLES T. BROWN.