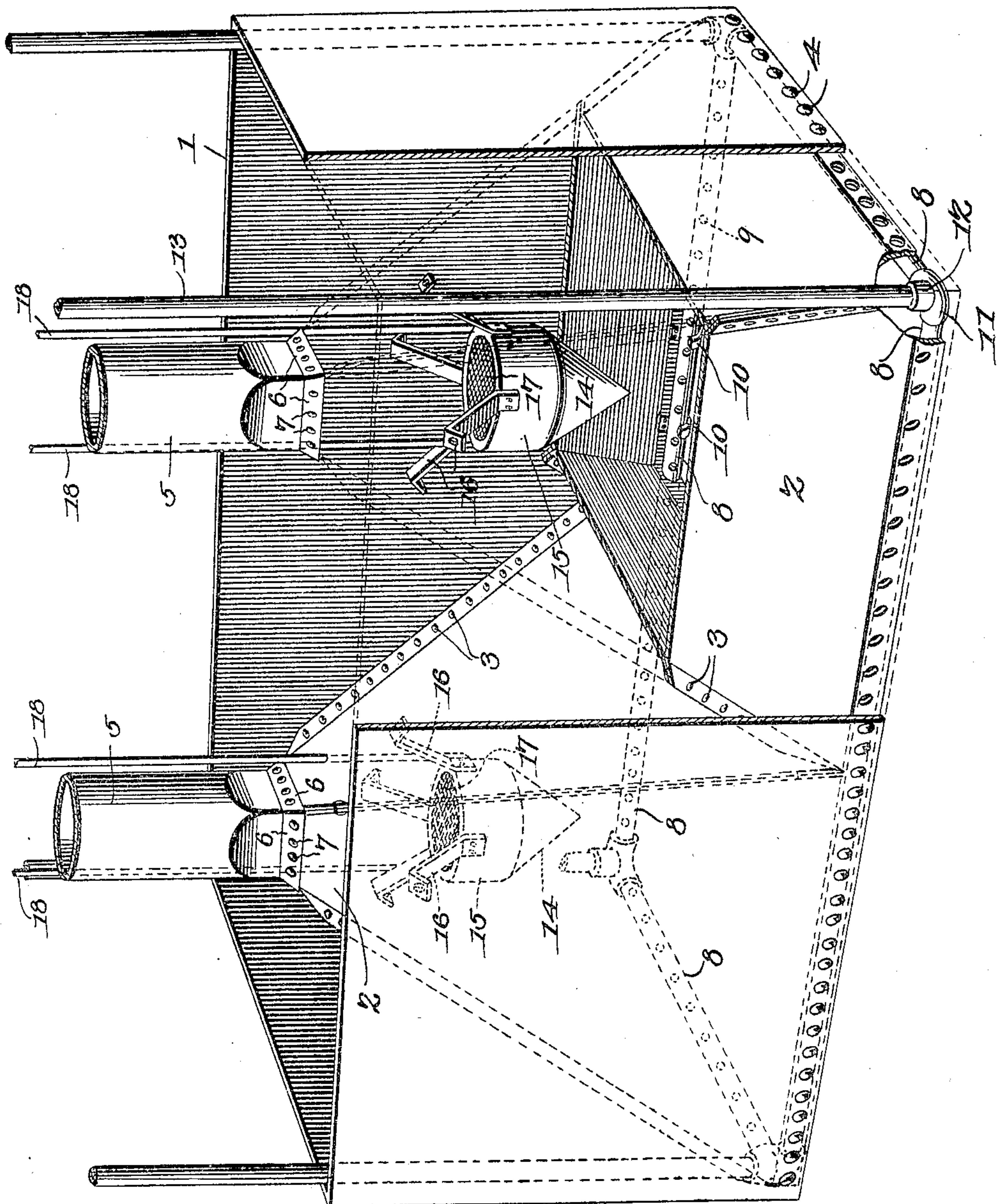


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PATENTED DEC. 19, 1905.

E. N. GILBERT.
CAISSON.

APPLICATION FILED APR. 21, 1906.



Edward N. Gilbert,
Inventor,
by *C. A. Snow & Co.*
Attorneys.

Witnesses:

E. J. Stewart
R. M. Elliott

UNITED STATES PATENT OFFICE.

EDWARD NATHEN GILBERT, OF CANADIAN, TEXAS.

CAISSON.

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To all whom it may concern:

Be it known that I, EDWARD NATHEN GILBERT, a citizen of the United States, residing at Canadian, in the county of Hemphill and State of Texas, have invented a new and useful Caisson, of which the following is a specification.

This invention relates generally to caissons, and more particularly to one adapted for use in sinking piers in rivers and other places where quicksand prevents the digging of a foundation.

The object of the invention is to provide a caisson which shall be simple of construction, thoroughly effective in operation, and in which the quicksand shall be as rapidly removed as it approaches a predetermined point within the caisson.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a caisson, as will be hereinafter fully described and claimed.

In the accompanying drawing, forming a part of this specification and in which like characters of reference indicate corresponding parts, the figure is a view in perspective with parts broken away to exhibit the internal construction of the caisson.

Referring to the drawing, 1 designate the shell of the caisson, which is preferably rectangular in form, is open at its bottom and top, is formed of heavy sheet metal or boiler-iron, and may be of any size according to the requirements of the caisson.

Arranged within the shell are a plurality of earth-traps 2—in this instance two in number—which are shown as truncated pyramids and are constructed of plates of metal the edges of which are flanged and held assembled by rivets or bolts 3, the lower edges of three sides of each of the traps being secured at or near the lower edges of the shell by bolts or rivets 4. Each earth-trap has secured to its upper end a tubular section 5, which constitutes a discharge and with which connect other sections of pipe (not necessary to be shown) leading above the surface of the water or ground.

As herein shown, the apices of the earth-traps are rectangular, and the lower ends of the sections 5 are similarly shaped and are provided with outturned flanges 6, that are secured to the said apices by rivets or bolts 7.

Surrounding the lower edge of the shell and disposed on the inner side thereof are four

pipes 8, the inner faces of which are provided with orifices 9, which may be of any size and spaced at any desired distance apart. These pipes are supported in any suitable manner from the inner walls of the earth-traps, preferably by hangers 10, two only of which are shown, and which are disposed in such relation to the orifices 9 as not to interfere with the discharge of the water therethrough. The terminals of the pipes are connected by three-way couplings 11, and with the vertical member 12 of each coupling is connected the lower end of a water-supply pipe 13, the upper end of which leads to a suitable supply of water under high pressure, or a force-pump may be combined with the pipes, and as this will be readily understood detailed illustration thereof is deemed unnecessary.

Supported within each of the earth-traps at any desired distance below its apex is an air-chamber comprising a cone-shaped bottom 14 and a cylindrical body 15, the chamber being supported in position beneath the section 5 by braces 16, bolted or riveted, respectively, to the outer side of the body 15 and to the inner walls of the earth-trap, as clearly shown. The upper end of the trap is covered by a screen 17 of any desired mesh. Communicating with the body 15 of the air-chamber are a plurality of air-supply pipes 18—in this instance two in number—which are disposed at opposite sides of the body, although they may be otherwise arranged, and which are adapted to force the sand that settles upon the screen upward and through the discharge-pipe to a suitable point, the screen 17 operating to prevent entrance into the air-chamber of stones or other debris that would tend to clog it.

In use, the caisson is positioned over the point where the piers are built, and concrete or cement is packed in around the outer walls of the earth-traps and the inner walls of the shell and water under pressure is supplied to the pipes 13, which will serve to dislodge the sand and drive it upward onto the screen of the air-chambers. At the same time air under heavy pressure is blown down through the pipes 18, whereupon the sand will be forced out through the discharge-pipes to a suitable escape. This operation is continued, and as added concrete is superposed upon that already supplied the weight of the caisson will be increased, so that it will be forced downward by its own inherent weight and will be caused to seek a firm foundation. Of course it will be understood that the upper edge of the shell

will not be permitted to sink below the surrounding earth until the concrete has been supplied, so that by the time the caisson has reached its bed the base of the pier will have
5 been completed.

After the base is seated the projecting ends of the pipes are either cut off or bent over and the building of the pier is then carried on in the usual manner. By having the terminals
10 of the air-chambers conical or pointed these will present less resistance to the sinking of the caisson.

Having thus described the invention, what is claimed is—

15 1. A caisson embodying an earth-trap, means for supplying liquid under pressure to the lower portion thereof, and pneumatic earth-discharging means arranged in the upper portion of the trap.

20 2. A caisson embodying a shell, a plurality of earth-traps combined therewith, means for supplying liquid under pressure into the traps, and pneumatic earth-discharging means arranged in the upper portion of each trap.

25 3. A caisson comprising a shell, a plurality of open-bottom earth-traps secured therein,

spraying mechanism disposed near the lower edges of the traps, a discharge-pipe connecting with the upper end of each of the traps, an air-chamber arranged within each of the
30 traps and disposed beneath the discharge-pipe, and air-supply pipes communicating with the air-chamber.

4. A caisson comprising a rectangular shell open at its upper and lower ends, a plurality
35 of pyramidal open-bottom earth-traps secured therein, inward-discharging spray-pipes disposed around the lower edges of the earth-traps, air-chambers supported beneath the apices of the earth-traps and provided with
40 reduced lower terminals, discharge-pipes communicating with the upper ends of the earth-traps, and air-supply pipes connecting with the air-chambers.

In testimony that I claim the foregoing as
45 my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD NATHEN GILBERT.

Witnesses:

W. J. MAYFIELD,

A. H. WALLER.