

Aug. 21, 1923.

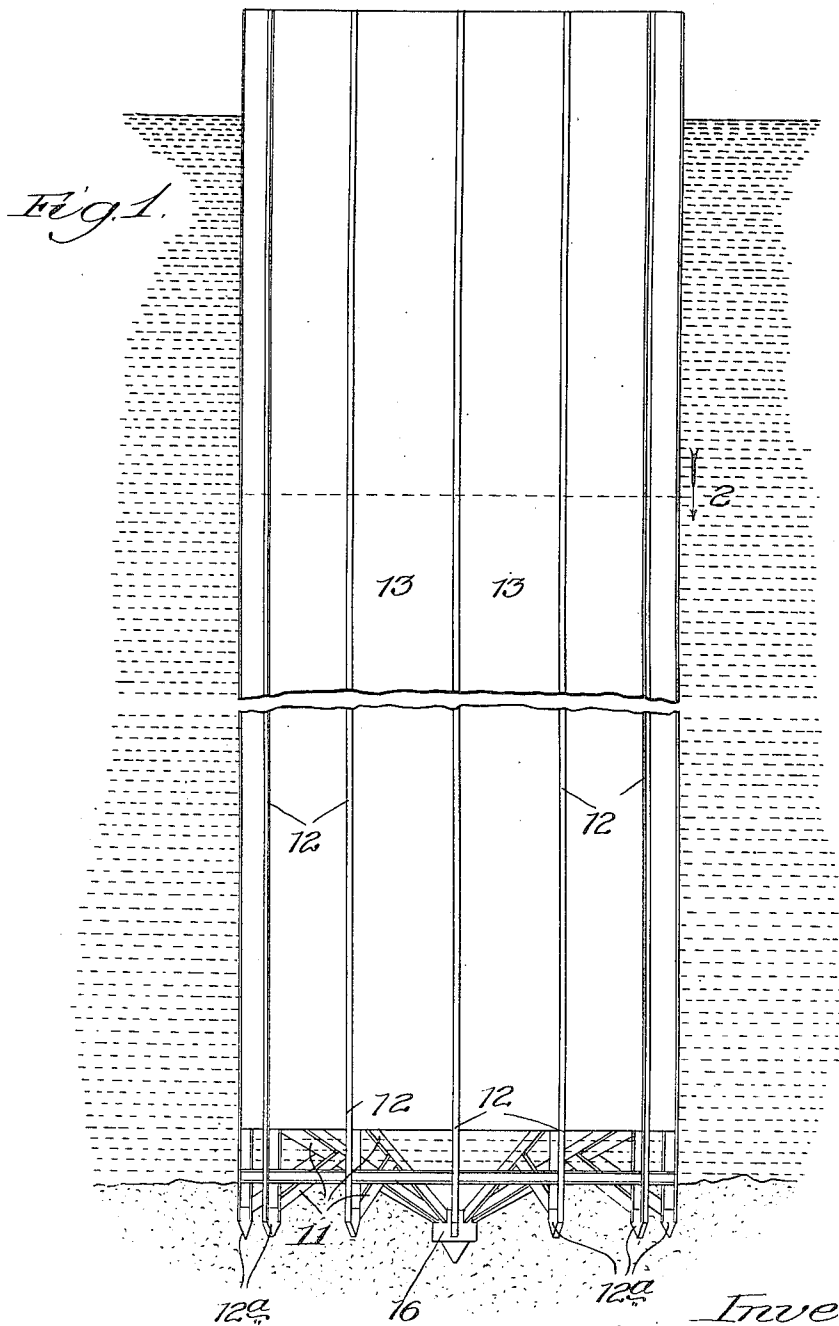
W. GRIESSER

1,465,664

CAISSON

Filed May 8, 1922

3 Sheets-Sheet 1



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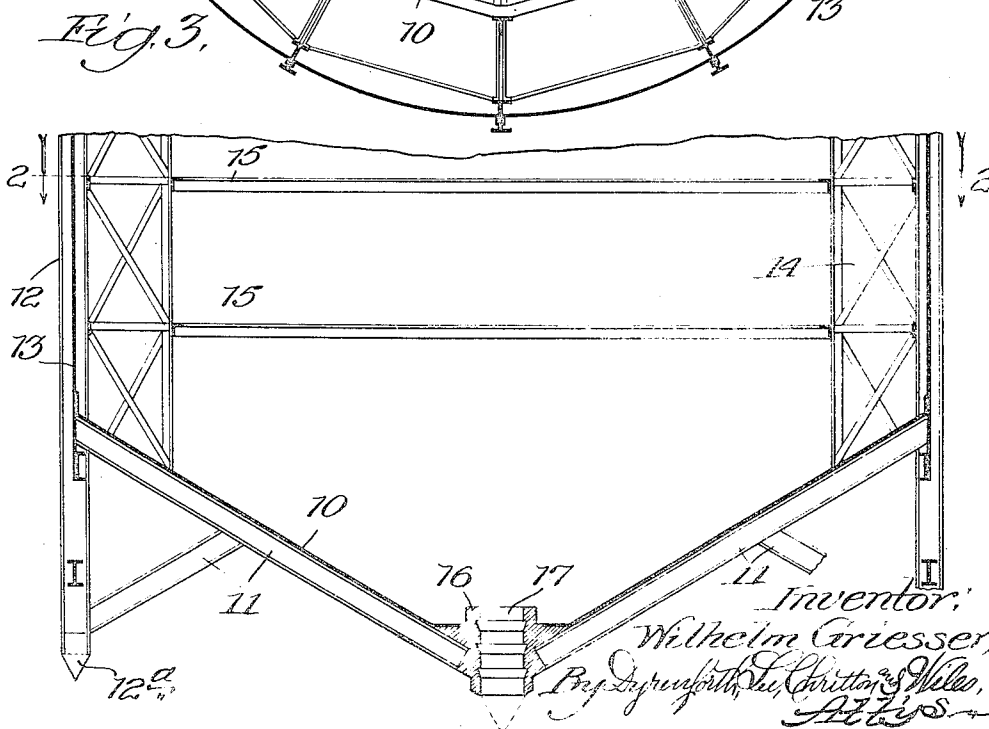
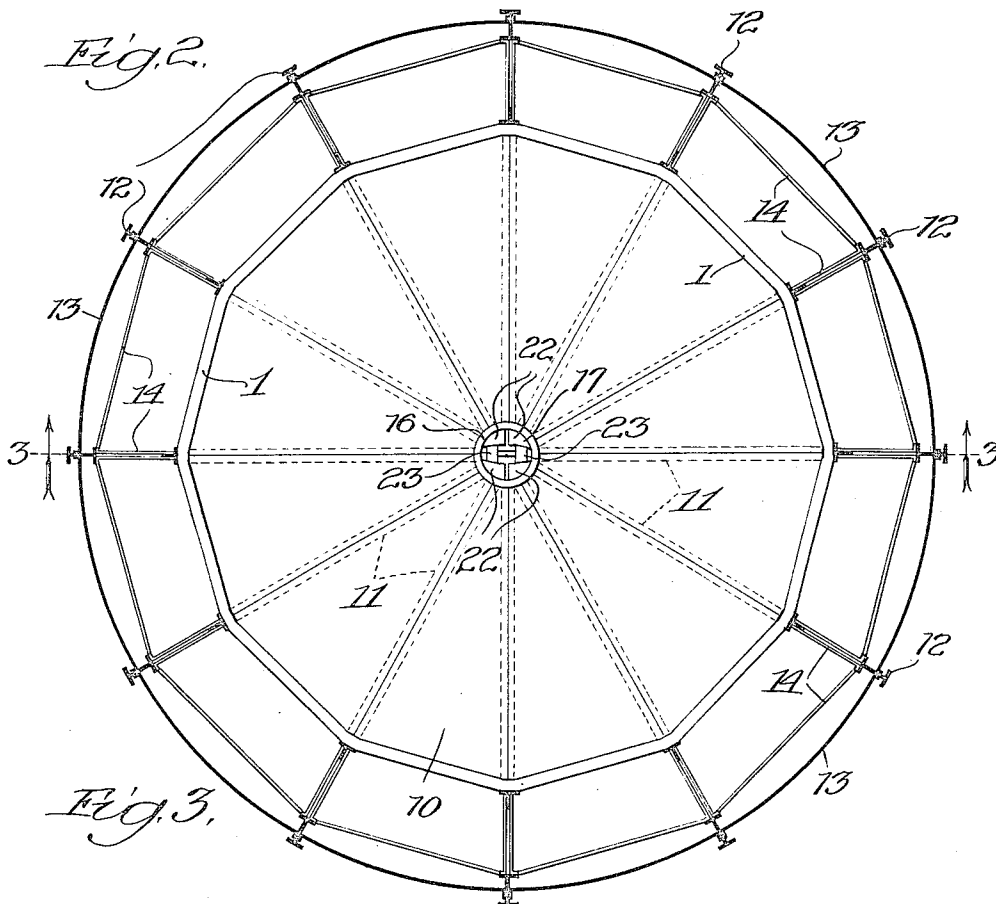
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3 Sheets-Sheet 2



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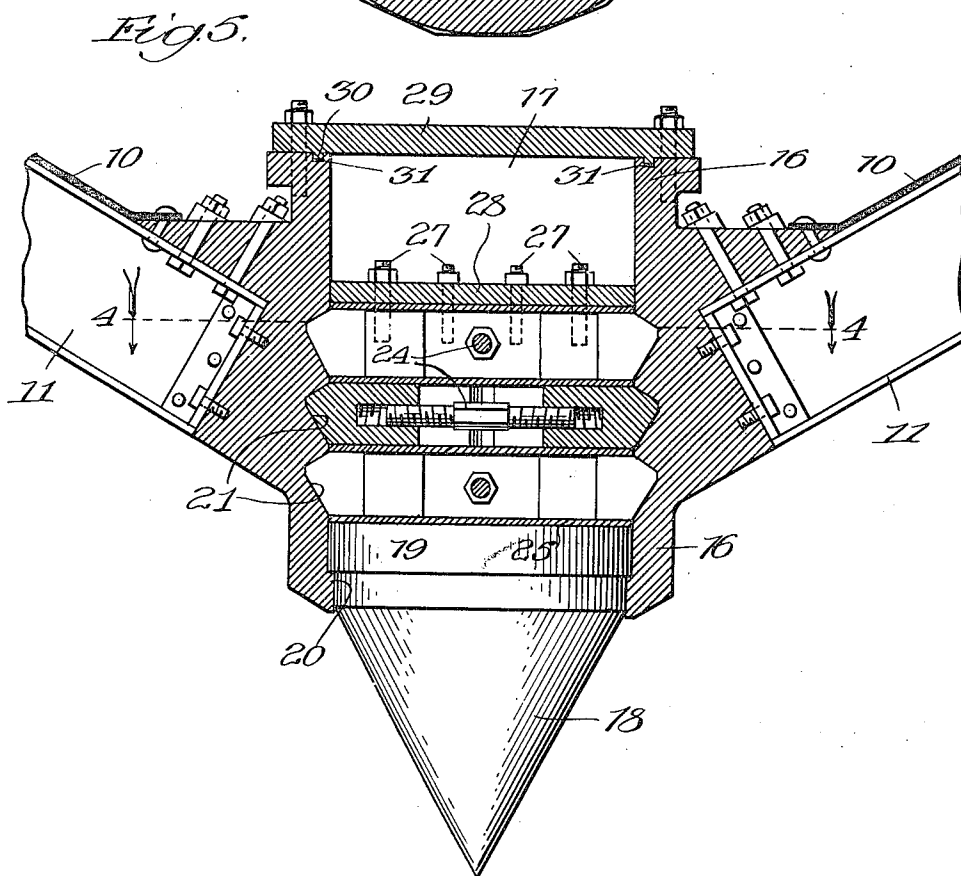
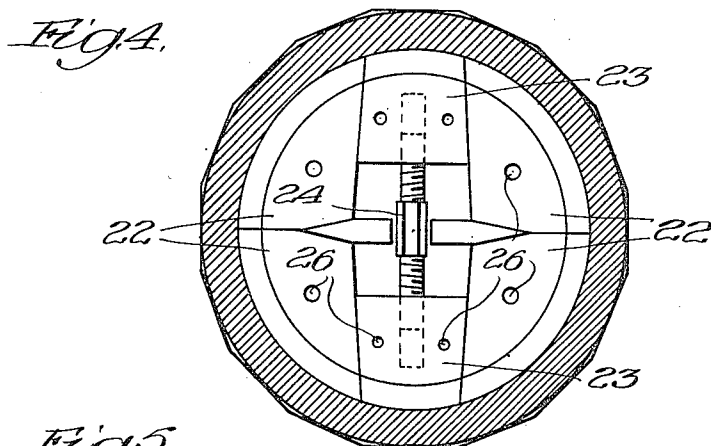
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

WILHELM GRIESSER, OF PITTSBURGH, PENNSYLVANIA.

CAISSON.

Application filed May 8, 1922. Serial No. 559,397.

To all whom it may concern:

Be it known that I, WILHELM GRIESSER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Caissons, of which the following is a specification.

This invention relates to caissons for use on rivers, lakes, sea bottoms and the like and comprises primarily a water-tight tube, with a conical bottom having a hole at the point with a removable closure therein so that when the caisson is resting upon the sea bottom, water will be excluded from the opening. This permits the closure to be removed to permit drilling operations and the like to be performed through the opening.

The invention is fully described in the following specification and shown in the accompanying drawings in which Figure 1 is a side elevation of the caisson in position on the sea bottom;

Fig. 2 is an enlarged horizontal section on the line 2 of Figs 1 and 3;

Fig. 3 is a vertical section through the bottom on the line 3—3 of Fig. 2;

Fig. 4 is a partial horizontal section on the line 4—4 of Fig. 5; and

Fig. 5 is an enlarged vertical section through the point.

In the embodiment shown, the caisson consists of a hopper-like bottom, having radiating structural braces 11 to which are secured vertical parallel beams 12, arranged in a circle on the periphery of the bottom 10. Circular plates 13 are riveted to these vertical beams and internal bracing sections 14 and inner angle irons 15 are secured therein.

A casting 16 having a vertical cylindrical opening 17 therein is secured to the center of the conical bottom 10 and is closed by removable means which will later be explained.

In assembling the lower section is first assembled and plates 13 and internal bracing sections 14 are superposed upon the next below and the whole rendered waterproof. The space between the shell 13 and the angle-irons 15 is then filled with concrete by the aid of suitable wooden forms, thereby causing the whole to sink in the water as the upper sections are added. This may be done from a permanent structure (not shown)

erected near the spot where the caisson is to be placed or it may be lowered from a barge or the like.

As the caisson is lowered, it finally engages the sea bottom and as it is sunk further by the addition of more sections and concrete, the central nose becomes buried firmly in the sea bottom to a considerable depth as shown in Fig. 1, due to the weight of the caisson. The casting 16 is thus so firmly embedded on the sea bottom that little or no water will seep through the opening 17 when the closing means is removed.

This removable closure for the opening 17 as shown in Figs. 4 and 5 consists of a conical plug 18 having a shoulder 19 resting upon an annular shoulder 20. Above this plug are three annular U-shaped grooves 21 formed in the walls of the cylindrical opening 17. In each of these a series of tapered plates are inserted as shown in Fig. 4.

The four corner plates 22 are first inserted into the grooves 21 and the wedge plates 23 are placed therebetween as shown, the turn buckle 24 having first been turned to draw the wedge plates 23 together. The turn buckle is then turned so as to spread the plates 23, thereby firmly wedging the plates 22 into the groove 21 and compressing the rubber gasket 25 placed between these plates and the top of the plug 18, thereby providing a water-tight seal.

Holes 26 are provided in the plates for insertion of screws to assist in placing and removing the plates. Similar plates are inserted in each of the grooves and similar rubber gaskets placed between each above the upper plate, the latter being compressed by bolts 27 passing through the plate 28 and into the threaded holes 26. If desired an additional cover plate 29 may be used having a shoulder 30 compressing a ring 31 of rubber in a groove in the top of the casing 16.

It will be understood that the foregoing packing is to be used to close the opening 17 while the caisson is being lowered and that when once firmly embedded in the sea bottom and the top firmly anchored either to caissons (not shown) or to any suitable structure, the plates may be removed and drilling tools inserted through the opening for drilling in the sea bottom for oil, water, gas, or the like.

For additional anchorage and support,

the vertical members 12 are extended beneath the bottom 10 and are provided with hardened plates 12^a for engagement with the sea bottom. The caisson may also be supported by means of the structures shown in my Patent No. 1,391,380 granted September 20, 1921. Caissons similar to that described in this application or the tanks of the said patent may also be used to store the oil, water or gas which is found. These caissons or tanks may also serve as foundations for plants for pumping and the like.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims in which it is my intention to claim all novelty inherent in my invention as broadly as possible in view of the prior art.

I claim:

1. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom and removable means for closing said opening, whereby the sea bottom will seal said opening when said removable means is removed.

2. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom, removable means for closing said opening, whereby the sea bottom will seal said opening when said removable means is removed, and additional means on said caisson for anchoring it to the sea bottom.

3. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom, removable means for closing said opening, whereby the sea bottom will seal said opening when said removable means is removed, and members extending below said

tube so as to engage the sea bottom to form an additional anchor.

4. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom, a series of grooves in said opening, a series of removable members adapted to be clamped into said grooves, and packing held between said members, whereby the sea bottom will seal said opening when said removable means is removed.

5. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom, a series of grooves in said opening, a series of removable members adapted to be clamped into said grooves, and rubber gaskets held between said members, whereby the sea bottom will seal said opening when said removable means is removed.

6. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom, a series of grooves in said opening, a shouldered conical member seated in the bottom of said opening, a series of removable members adapted to be clamped into said grooves, and rubber gaskets held between said members, whereby the sea bottom will seal said opening when said removable means is removed.

7. A water-tight caisson for use on the sea bottom comprising a vertical tube having a conical bottom adapted to be forced into the sea bottom by the weight of the caisson, an opening through the point of said conical bottom and removable means for closing said opening, whereby the sea bottom will seal said opening when said removable means is removed, for drilling in the sea bottom for oil and the like, said caisson serving as a storage tank for said oil when struck.

WILHELM GRIESSER.