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CAISSON

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Fig. 1.

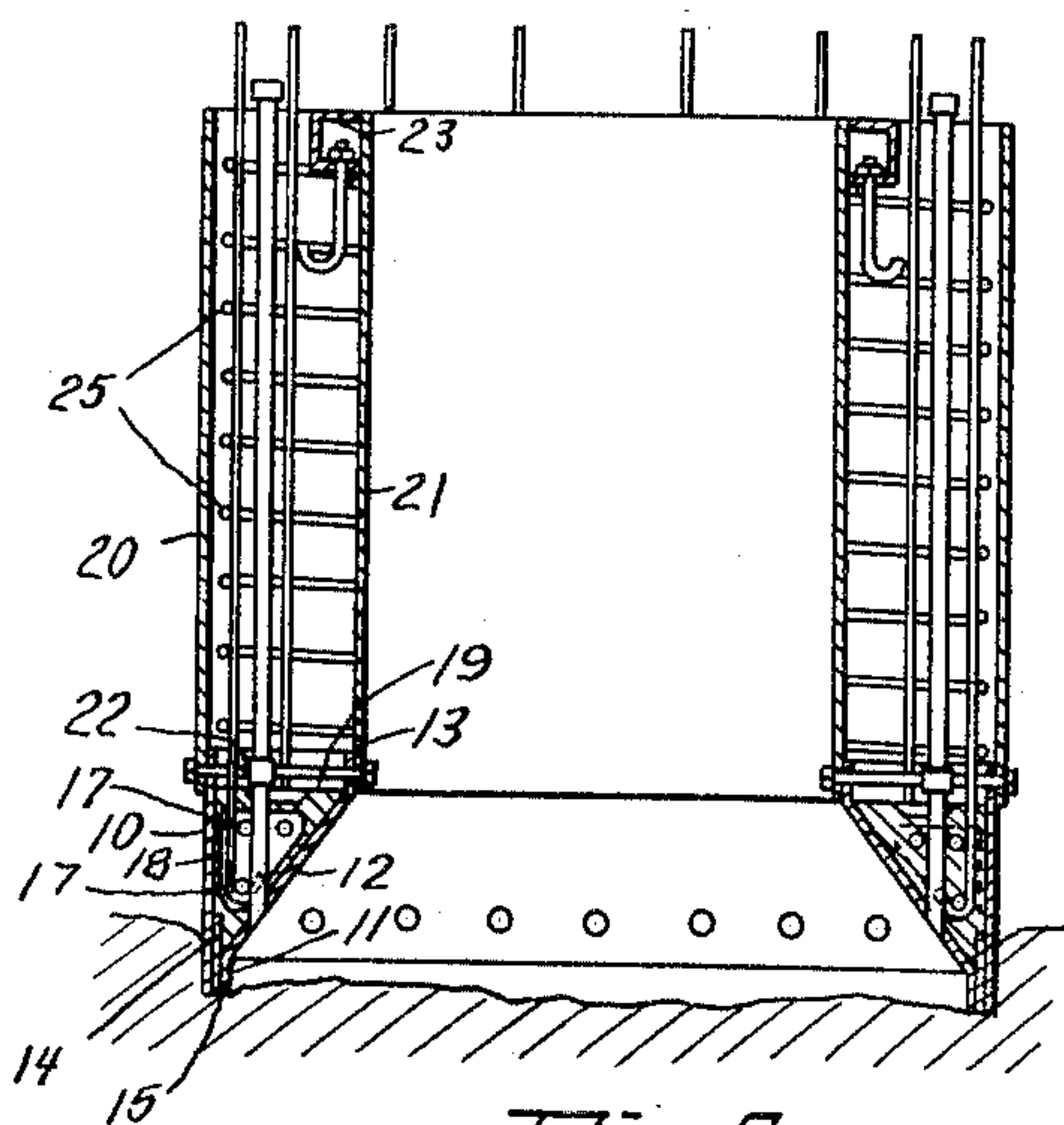


Fig. 2.

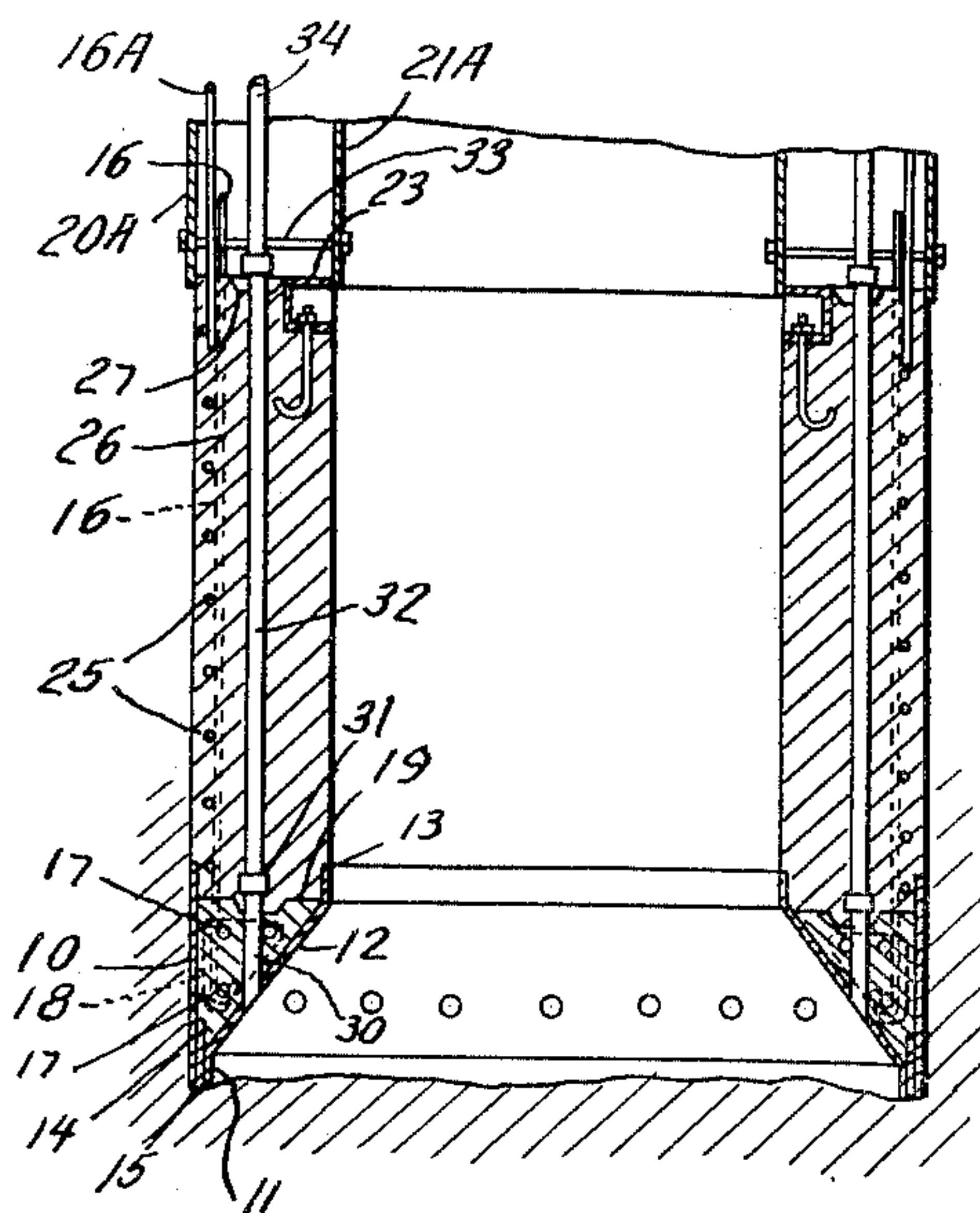
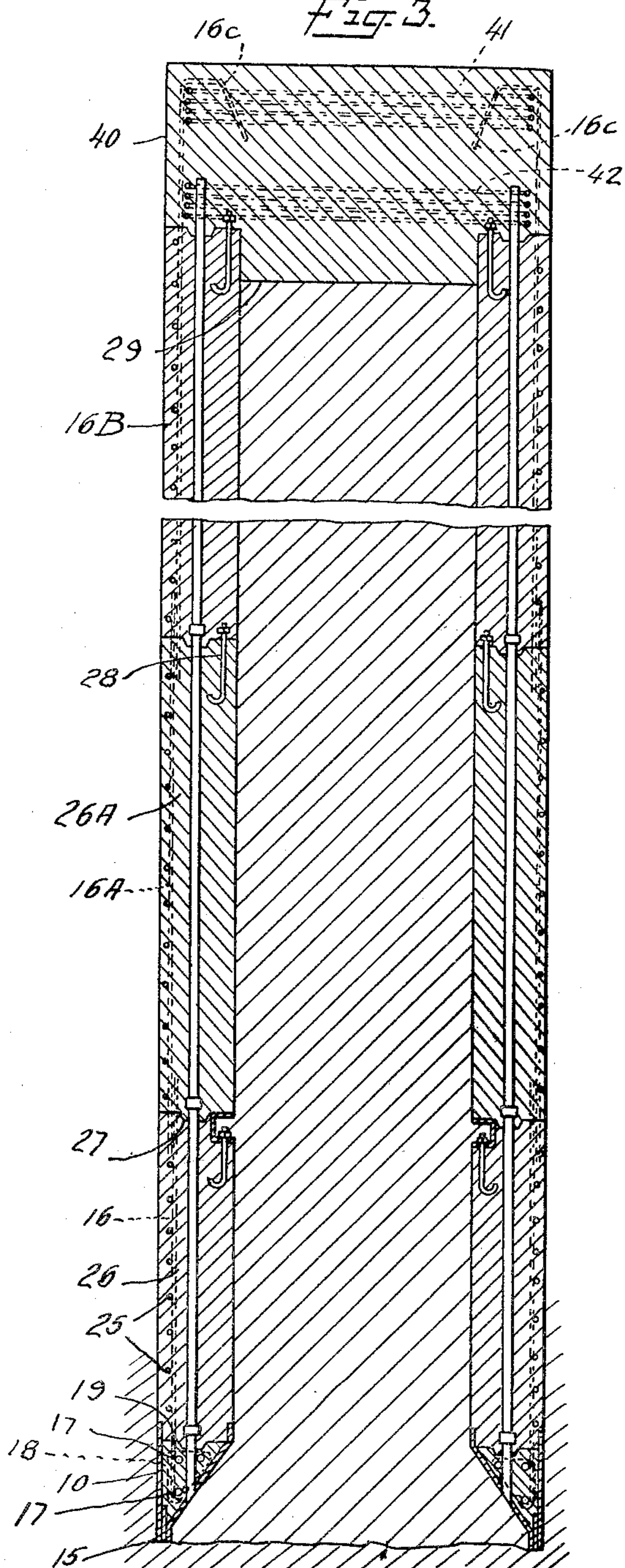


Fig. 3.



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## CAISSON

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This invention relates to improvements in caissons, and its object is to provide a simple device which may be easily sunk under earth or water, parts of which are constructed during the depressing operation, and to a novel method of making caisson pier foundations.

Another object is to provide a novel construction and method which is adaptable to either open piers or to compressed air methods.

These and other objects will appear from the following specification in which I will describe the invention, the specific features of which will be pointed out in appended claims.

Referring to the drawing,

Fig. 1 is a sectional elevation showing the base member with molds attached;

Fig. 2 is a similar view with the lower section of the caisson completed and the molds removed; and

Fig. 3 is a sectional elevation of a completed pier foundation.

In carrying out this invention a base member is formed of an outer shell 10 of desired size and shape with an inner shell having an edge portion 11, an oblique body 12 and a flange 13 parallel with the shell 10. Between the edge portion 11 and the shell 10 is a reinforcing sheet 14 and these parts are fastened together in some suitable manner, such as welding to form a three-ply cutting or supporting edge 15.

16 is a vertical reinforcing rod which is bent under horizontal reinforcements 17 which, if desired, may be passed through metallic plates 18. This base member is filled with concrete up to the irregular line 19.

An outer sectional mold 20 and an inner collapsible mold 21 are affixed to the base member by bolts 22. A channel structure 23 is placed near the top of the inner mold 21 with threaded anchors projecting down through it. Horizontal reinforcements 25 are put in place before both of the molds are set up. 30 designates pipes which project through the oblique body 12 with their lower ends beveled to coincide with the outer

surface of the part 12. 31 are couplings on the upper ends of these pipes. 32 are other pipes, the lower ends of which are screwed into the couplings 31. 33 are couplings on the upper ends of pipes 32.

The parts thus described are shown in Fig. 1.

The next step in this method consists in filling the space between the molds 20 and 21 with concrete 26. Vertical reinforcements 16A are embedded in the upper part of this concrete and its upper surface is finished with a depression 27. Then the molds 20 and 21 are removed and moved up to the positions in which they are shown at 20A and 21A in Fig. 2, and other pipes 34 are screwed into the couplings 33.

The channel 23 forms a niche or groove to receive a diaphragm and door mechanism when compressed air methods are to be used.

Now the base portion has a hollow shell 26 of concrete extending upwardly from it. The material under the edge 15 of the base member may be removed and discharged through this shell, thus permitting the parts to settle and sink until a satisfactory foundation bearing material is reached. While this is going on a second section or shell 26A is being formed with its lower edge filling the depression 27 in the upper edge of the shell 26. Holding bolts 28 for air lock parts may be embedded in the upper part of the section 26A. When the soil is suitable, the excavation may be effected by jets of water introduced through the pipes 30.

This method is repeated until a hollow shell of desired height has been formed. Then the inside of the shell thus formed is filled up to the line 29, Fig. 3.

A cap 40 of concrete is then formed on top of the filled caisson. The mold 20 may be used for this. Vertical reinforcements 16B are carried up to and bent over horizontal reinforcements 41, as shown at 16C. 42 designates other horizontal reinforcements. The cap 40 will receive and support the superstructure for which this foundation is prepared.

One way of practicing this method has been described and one way of constructing



the parts of the caisson illustrated, but variations and modifications may be made without departing from the spirit and scope of the invention and I intend no limitations other than those imposed by the appended claims.

What I claim is:

1. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member and another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said first section.

2. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member, another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said first section and reinforcements tying said base and shell sections together.

3. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member, another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said first section and airlock retaining means between adjacent shell sections.

4. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member, another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said first section and a filler in the base member and the shell sections.

5. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member, another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said first section, a filler in the base member and the shell sections and a cap on the upper shell section and the filler.

6. The combination of a base member having spaced inner and outer walls, a hollow concrete shell section having walls extending upwardly from and in line with said walls of the base member, another hollow concrete shell section resting upon the first mentioned shell having walls extending upwardly and in line with the walls of said

first section, a filler in the base member and the shell sections, a cap on the upper shell section and the filler and reinforcements tying said base, shell sections and cap together.

7. A caisson supporting base comprising an outer wall member having straight vertical sides, an inner member having a lower portion overlapping and affixed to the lower portion of the outer wall member, an upper wall member portion spaced inwardly from and parallel with the outer wall member and an intermediate oblique portion, and means for detachably connecting separate molds to the upper portions of said wall members.

8. A caisson supporting base comprising an outer wall member having straight vertical sides, an inner member having a lower portion overlapping and affixed to the lower portion of the outer wall member, an upper wall member portion spaced inwardly from and parallel with the outer wall member and an intermediate oblique portion, pipes extending through said oblique portion, means for detachably connecting separate molds to the upper portions of said wall members and other pipes to said first mentioned pipes.

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