

No. 828,418.

PATENTED AUG. 14, 1906.

G. G. MYERS.  
MOLD FOR CEMENT CISTERNS.

APPLICATION FILED FEB. 12, 1906.

2 SHEETS—SHEET 1.

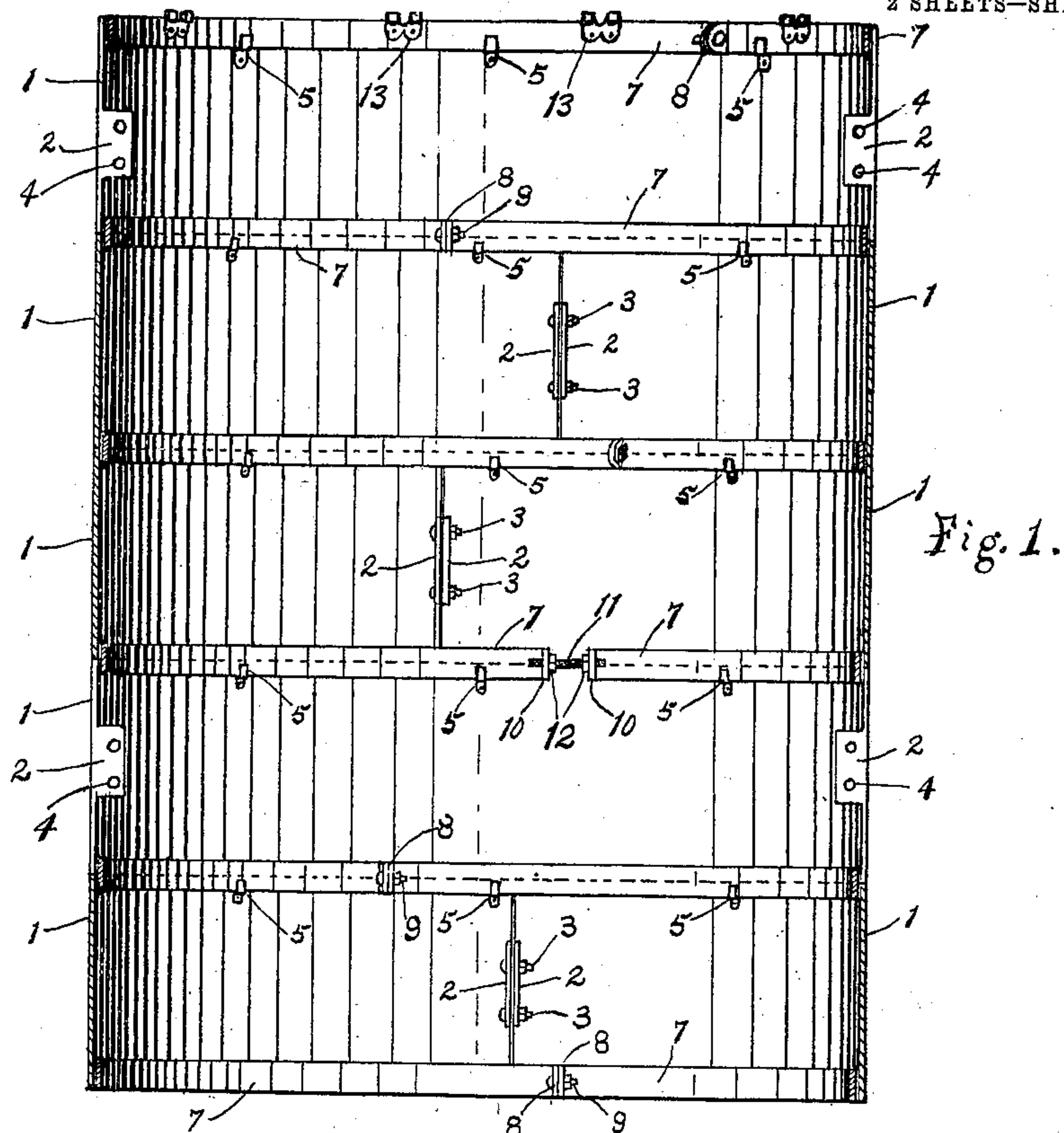


Fig. 1.

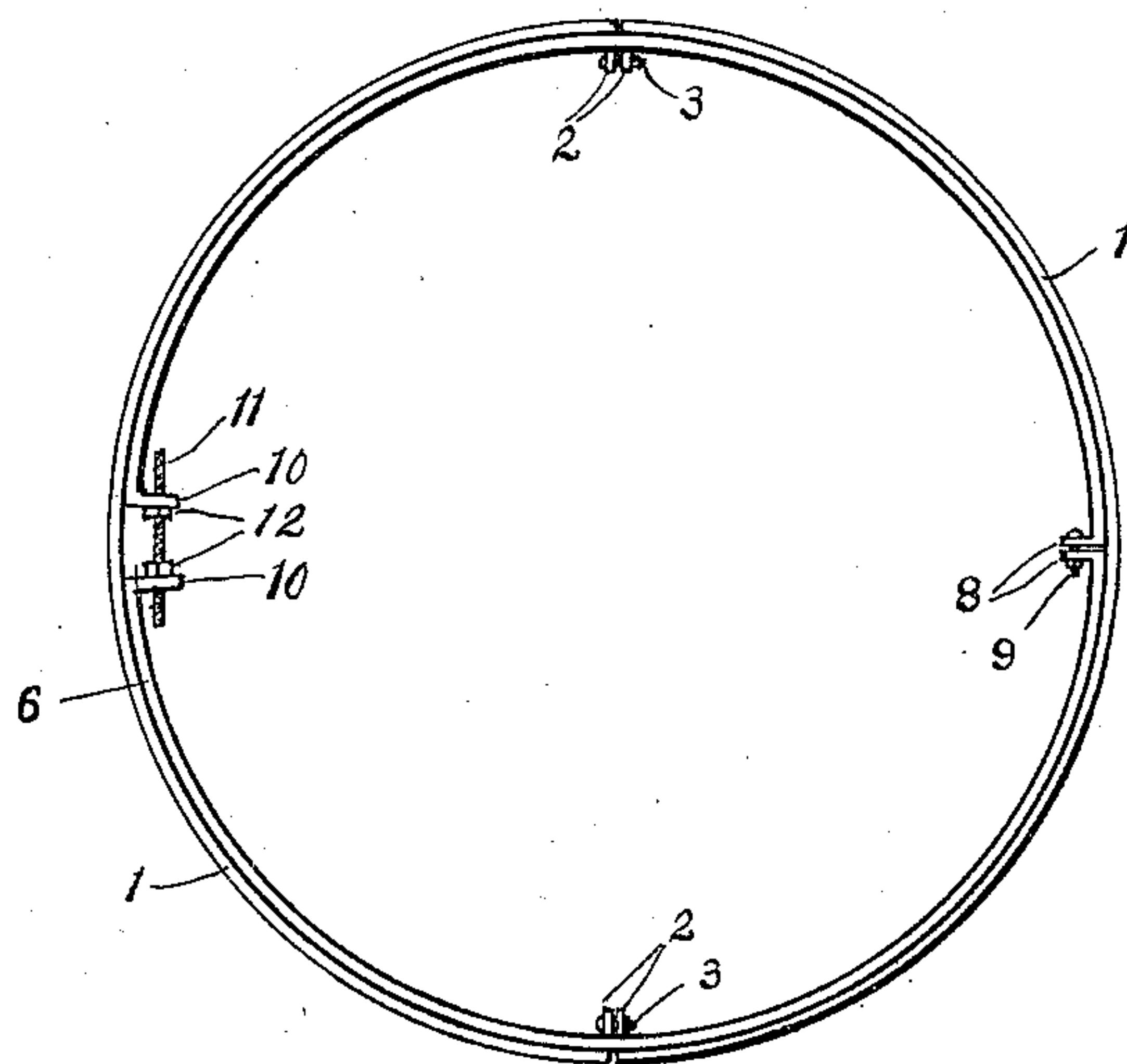


Fig. 2.

Witnesses

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His Attorney

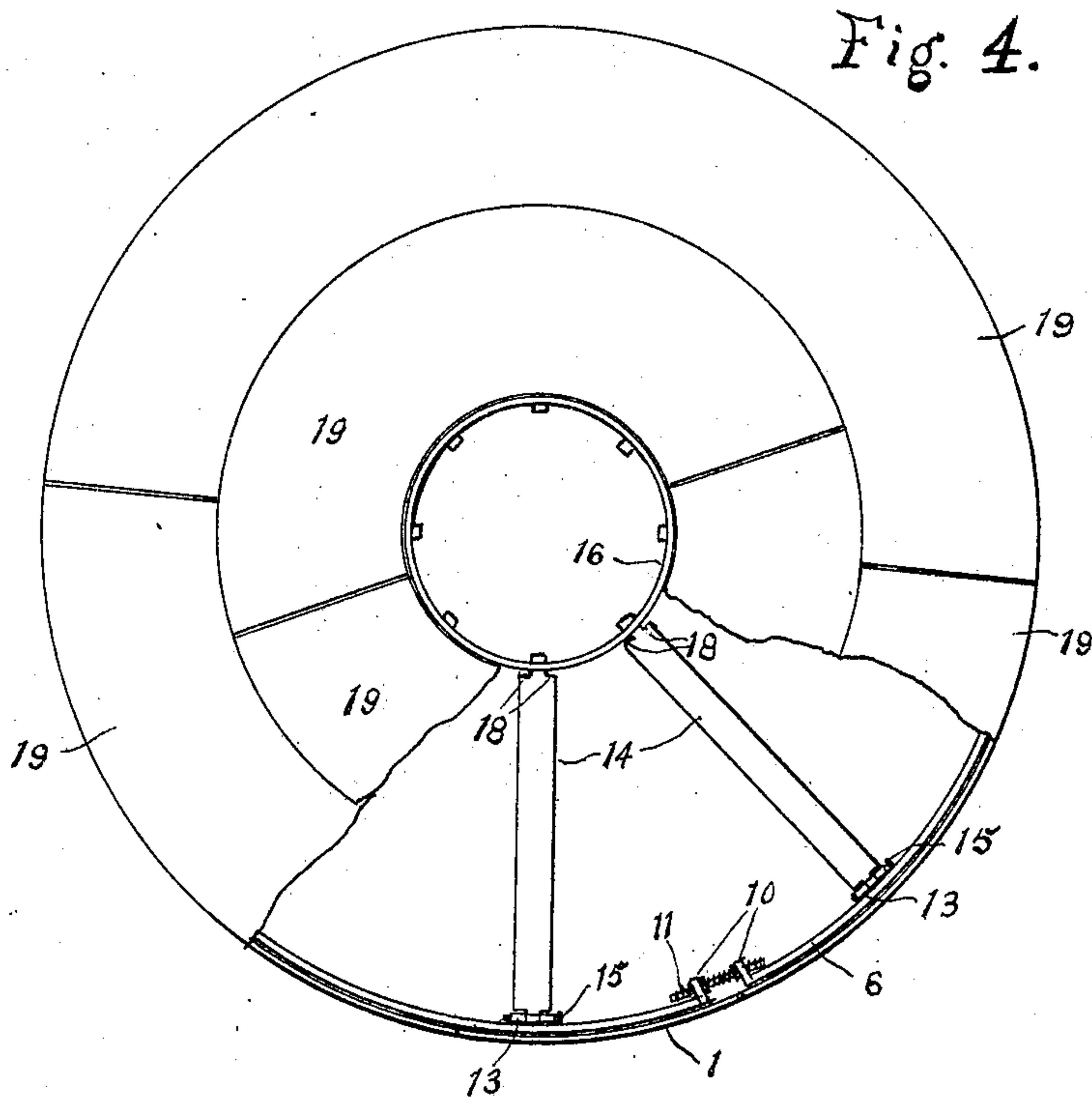
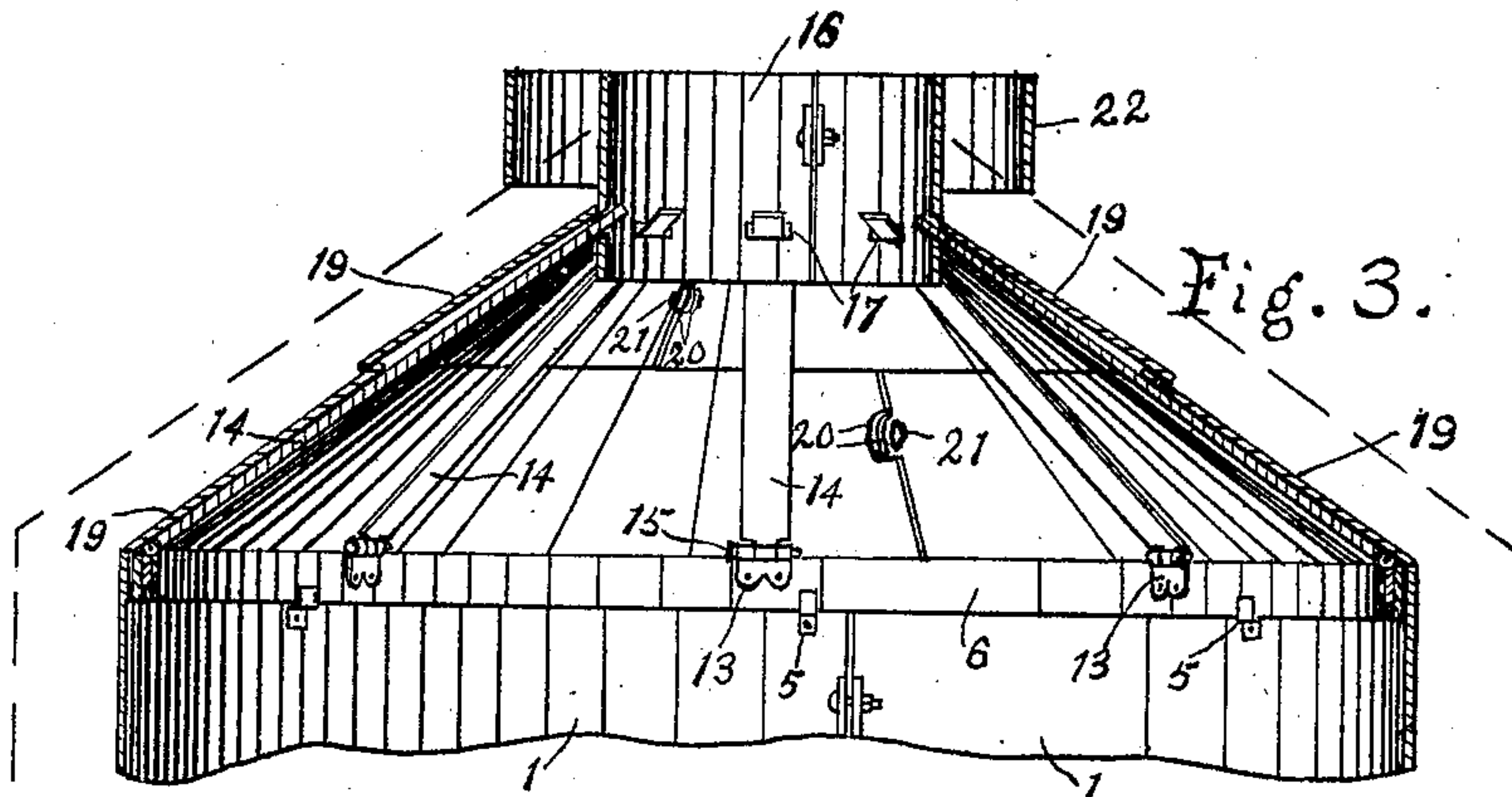
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# UNITED STATES PATENT OFFICE.

GRANT G. MYERS, OF STERLING, ILLINOIS.

## MOLD FOR CEMENT CISTERNS.

No. 828,418.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed February 12, 1906. Serial No. 300,563.

*To all whom it may concern:*

Be it known that I, GRANT G. MYERS, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Molds for Cement Cisterns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention has reference to molds to be used in the construction of cement cisterns, and pertains to that class thereof which are designed to be taken apart and removed from the interior of the cistern after the completion thereof.

By the use of my device an inner shell of sheet metal is produced by successive stages corresponding to the several stages in the construction of the walls of the cistern and the further provision of expansible rings at regular intervals on the inside of the shell to support the same from the pressure exerted by the plastic material on the outside thereof. I also provide an arch or top portion of the mold for the temporary support of the material forming the roof or top of the cistern while such material is being placed in position and solidifying.

The purposes and advantages of my invention will more fully appear in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of the completed mold for the side walls of the cistern. Fig. 2 is a top plan view of one of the sections forming the shell of the mold and the supporting-ring therefor. Fig. 3 is a central vertical section of the top of the mold when in position. Fig. 4 is a plan view thereof with a portion of the supporting-plates broken away.

Similar numbers refer to similar parts throughout the several figures.

The shell portion of the mold which supports the side walls of the cistern is formed of a series of similar sheet-metal sections circular in form, each section being constructed of two semicircular plates 1 1. The plates of each section are adapted to be fastened together by means of inwardly-extending projections 2 2 on the adjoining ends of the

plates, each pair of said projections being held together when in position by means of bolts 3, passing through perforations 4 4 in such projections.

Near the upper edge of each section is fixed a plurality of small brackets 5 5, suited for the support of a metal ring 6, also formed of two semicircular segments 7 7. At one side of the ring the parts 7 are held together by means of inwardly-projecting ears 8 8 and a bolt 9, passing through perforations therein, while at the opposite side the segments are provided with a pair of inwardly-projecting ears 10, through perforations in which passes a bolt 11. Seated on the bolt 11 between the ears 10 is a pair of small nuts 12 12.

All of the brackets 5 except those which support the upper ring 6 are so located that the rings which are held thereby will be supported so as to project partially above the upper edge of the sections in which they are severally secured. The ring 6 of the upper section is supported so that the upper edge thereof will be flush with the upper edge of the section, and such ring is provided with a plurality of equidistant supports 13, in which are secured the outer ends of a radial series of braces 14 by means of pins 15, extending through perforations in the supports 13 and in the outer ends of said braces. The braces 14 extend upwardly and inwardly, and are adapted to support a collar 16, such collar being provided with an annular series of openings 17, in which the inner ends of the braces 14 are secured. Said braces are provided near their inner ends with shoulders 18, which aid in supporting the collar 16 in a horizontal position.

Circular plates 19 are supported on the braces 14, each of said plates being formed of two parts detachably secured to one another by means of ears 20 and bolts 21 similarly to the plates 1. 22 is an outer collar which is used in forming the neck of the cistern after the top thereof is in place.

The lower section of the shell in addition to the ring 6 at the upper edge thereof is provided with a similar ring at the lower edge thereof.

The manner of using my device is substantially as follows: In order that it may not be necessary to tramp upon or disturb the cement-work forming the bottom of the cistern before the same is thoroughly hardened, I prefer to construct the side walls first. After the excavation is made (having a desired



depth and a diameter sufficient to leave a space for the cement walls between the mold and walls of the excavation) the lower section of the mold is temporarily supported on blocks on the bottom of the excavation. One of the rings 6 is then put together and inserted in the lower part of the section, and another one of such rings is placed at the upper edge of the section, as shown in Fig. 1. The rings are then expanded by operation of the nuts 12 until the plates 1 are firmly braced from outward pressure. The cement in plastic condition is then filled in between the lower section and side walls of the excavation as high as the upper edge of said section, the cement being thoroughly tamped during the process. Two more of the plates 1 are then lowered into the opening and fastened together with their lower edges resting upon the upper edge of the lower section, forming a continuation of the mold. The new section is then provided with a ring 6 at its upper edge, such ring being expanded after being put in place similarly to the others. The cement is then filled into the top of the second section and the operation repeated until the last section is in place and provided with the upper ring 6 and the cement wall built up to the upper edge of said top section. Upon the completion of the wall of the cistern the cement bottom or floor thereof is constructed. If desired, such bottom can be formed before the construction of the side walls; but for the reason above mentioned I prefer to construct the walls first. Upon the completion of the wall and bottom of the cistern the braces 14 are placed in position in the supports 13 and the collar 16 supported thereby. The plates 19 are then fastened together and supported on the braces 14, permitting the continuation of the cement-work upwardly and inwardly to the collar 16. After the top which is thus formed has sufficiently hardened the collar 22 is supported thereon, as shown in Fig. 3, and the space between such collar and the collar 16 filled with cement to form the neck of the cistern. When the cistern becomes solid, the pins 15 are removed by an operator on the interior of the cistern, and the braces 14, which are thereby released, are withdrawn from the collar 16 and passed out through the opening formed by such collar. The plates 19 are then separated and passed upwardly through the opening, after which the balance of the mold is removed by first separating and removing the rings 6 and then taking apart the several sections of the shell and passing the parts thereof through the opening at the top. The collars 16 and 22 are then removed, and the mold is ready to be transported for use in the construction of another cistern.

I do not wish to be understood as limiting myself to the exact mode of operation of my device which is hereinbefore set forth, as it

can be varied without changing the result. Any desired number of the sections 1 can be used, and the number of plates 19 can also be increased in the construction of cisterns having an increased diameter.

The rings 6 are preferably supported so as to cover the joints of two contiguous sections, such joints forming the weakest portions of the mold and being the most likely to be forced inwardly by the pressure of the cement. That part of the ring which projects above the upper edge of the section also furnishes a guide for the lower edge of the next upper section and aids materially in the seating and supporting thereof while the parts of the new section are being fastened together. The brackets 5 are chiefly required for the temporary support of the rings 6 while they are being put in place. Upon the expansion of such rings the impact thereof with the plates 1 assists in holding them in position.

It is evident that the width of the plates 1 and also of the plates 19 must be such as to permit them to pass easily through the opening at the top of the cistern.

The use of two bolts in each pair of the projections 2 is preferred, as the alinement of the contiguous edges of the plates 1 is thereby maintained prior to the placing of the rings 6 in position. It will be seen that the plates 1 can be formed of perfectly flat sheets of metal without any bending or crimping aside from the bending of the plate into semicircular form and turning the projections 2 at a right angle thereto. For this reason such plates are easily manufactured.

It is essential that the rings 6 shall be supported on the inner wall of the mold independently of the plates 1 for the reason that if such rings were attached to the plates the expansion of the rings would cause a separation of the ends of the plates 1 in each section; or, on the other hand, if the plates were sufficiently secured to each other the expansion of the rings would be impossible. By having the rings independent of the plates also permits such plates to be more easily handled.

In disconnecting the segments of which the rings 6 are formed the bolt 9 is removed, disengaging the ears 8, and the ears 10 can then be readily detached. In connecting the rings this operation is reversed.

The use of my device is not necessarily restricted to the construction of cisterns, but can be made applicable to the formation of any concrete work similar thereto.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class named, a plurality of circular sections, adapted to rest upon one another to form a vertical cylindrical mold, each of said sections being formed of two plates, detachably held to-



gether; a plurality of expansible rings, each formed of two segmental parts, detachably fastened together, and removably supported on the inner wall of said mold at the joints of said sections; a similar expansible ring removably supported at the lower edge of said mold, and a similar expansible ring removably supported at the upper edge thereof; substantially as shown and set forth.

10 2. In a device of the class named, the combination of two semicircular plates 1; means for detachably securing said plates together to form a section of the mold; a ring 6, formed of two semicircular segments; means  
15 for detachably securing said segments together at one side of said ring; means at the opposite side of said ring for expanding the same; and means for supporting said ring on the inner face of the section formed of the  
20 plates 1, substantially as shown and described.

3. In a mold for cisterns, the combination

of a plurality of circular sections, each formed of a pair of plates 1; means for detachably securing said plates together; a series of rings 25 6, each formed of a pair of segments 7; means for detachably securing such segments together; means for expanding said segments when in position; means for supporting said rings on the inner faces of said sections; a 30 series of radial braces 14; means on the upper ring 6 for supporting the outer ends of said braces; the collar 16, supported by the inner ends of the braces 14; and the plates 19, each formed of two parts detachably se- 35 cured together, substantially as shown and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GRANT G. MYERS.

Witnesses:

SEIDY HUMSBERGER,  
HIRAM MYERS.