

No. 668,291.

Patented Feb. 19, 1901.

C., J. A. & B. D. HUMMON.

CISTERN MOLD.

(Application filed Dec. 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

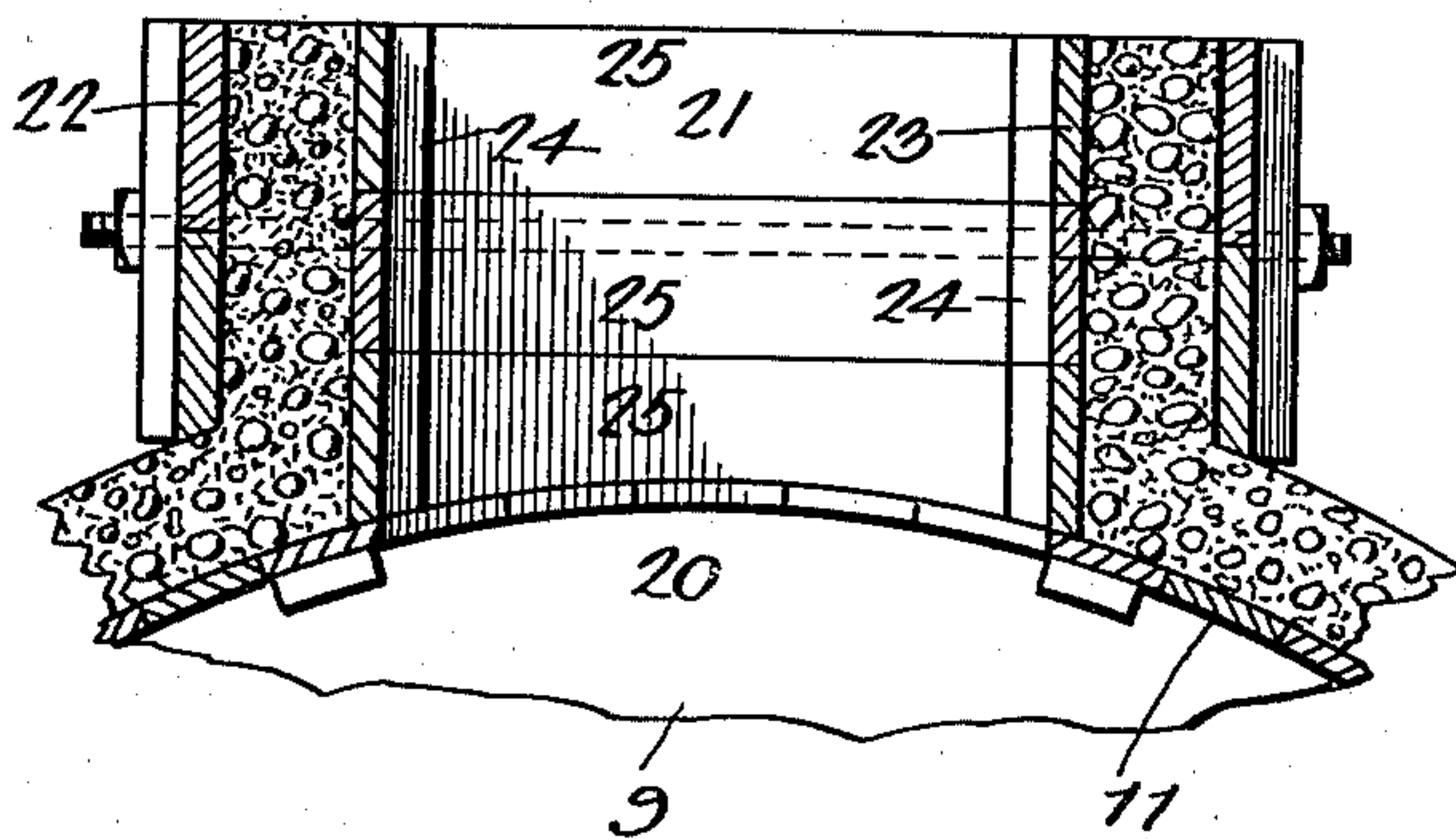
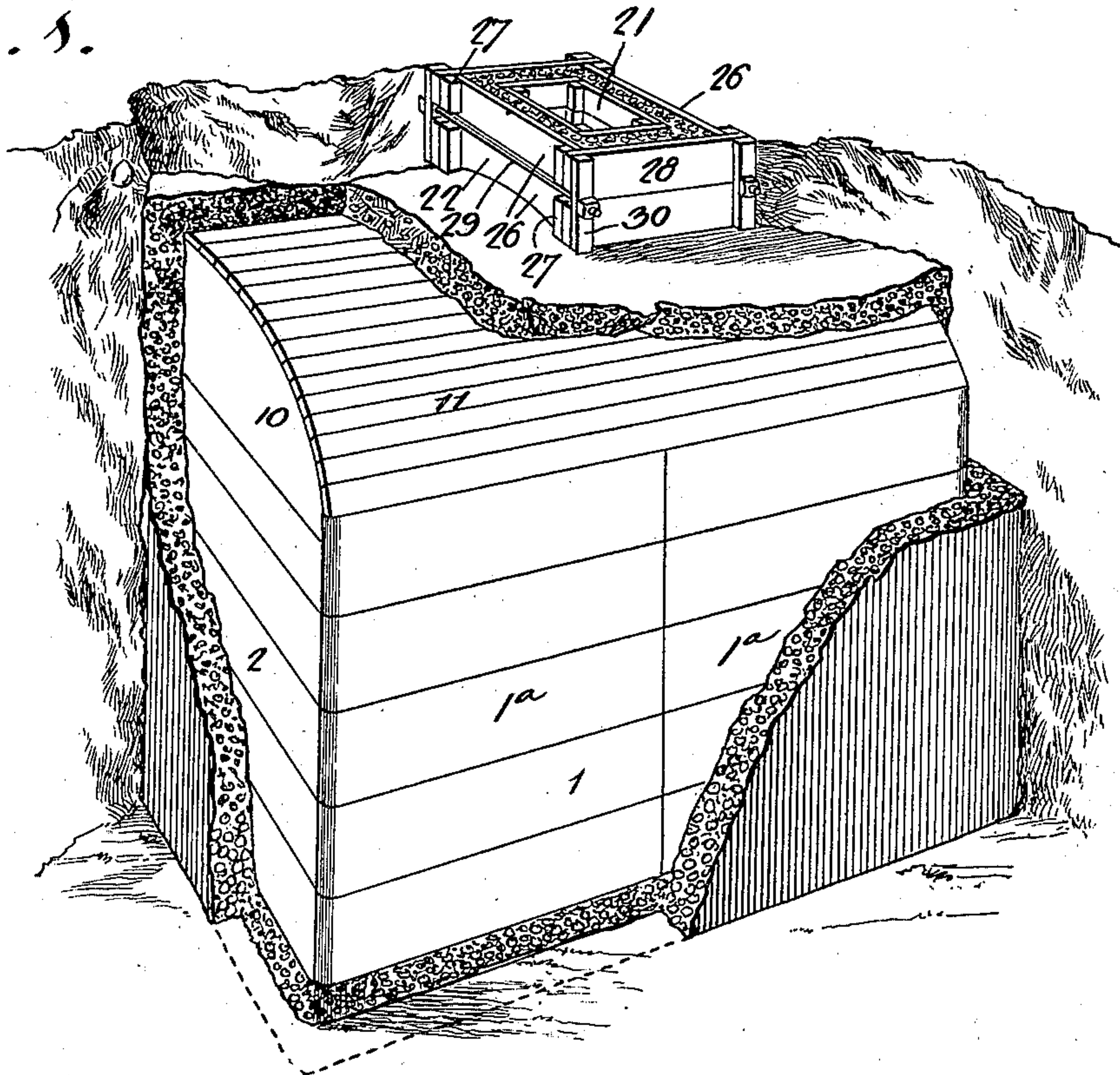


Fig. 3.

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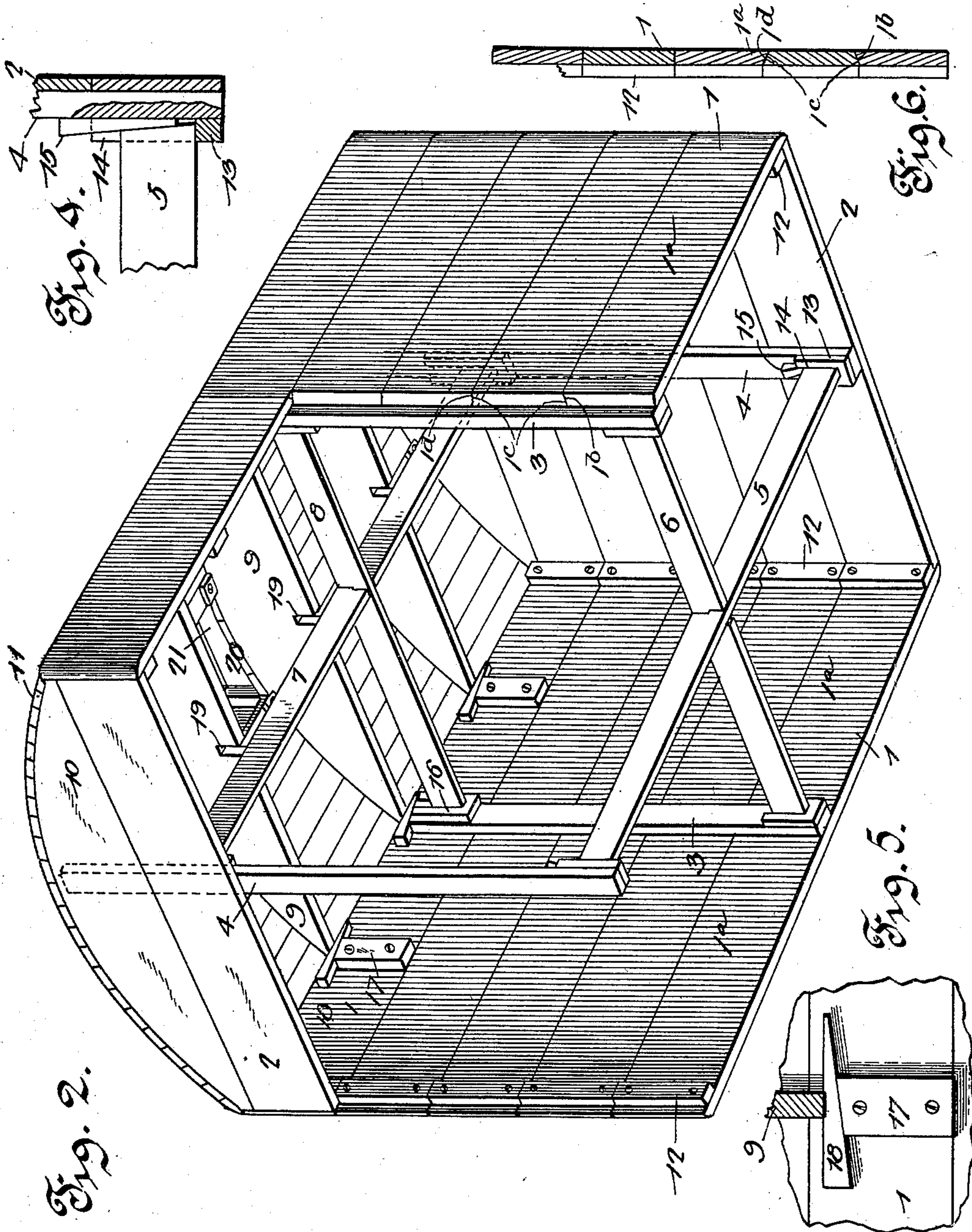
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

CYRUS HUMMON, JOHN A. HUMMON, AND BYRON D. HUMMON, OF LEIPSIC,  
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## CISTERN-MOLD.

SPECIFICATION forming part of Letters Patent No. 668,291, dated February 19, 1901.

Application filed December 14, 1900. Serial No. 39,896. (No model.)

*To all whom it may concern:*

Be it known that we, CYRUS HUMMON, JOHN A. HUMMON, and BYRON D. HUMMON, citizens of the United States, residing at Leipsic, in the county of Putnam and State of Ohio, have invented a new and useful Cistern-Mold, of which the following is a specification.

Our invention is an improved mold for shaping the inner sides of cisterns formed of grouting or other plastic material; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

The object of our invention is to provide an improved mold which is constructed of separable parts and which is adapted, after the cistern has been constructed and the material composing the floor, roof, and sides thereof has set and become hardened, to be removed from the interior of the cistern.

In the accompanying drawings, Figure 1 is a sectional perspective view of a cistern in process of construction on one of our improved molds. Fig. 2 is a perspective view of a mold constructed in accordance with our invention with parts removed to disclose the interior construction thereof. Fig. 3 is a detail sectional view taken through the neck of the mold. Figs. 4 and 5 are detail views. Fig. 6 is a vertical transverse section of the lower portion of one of the side walls of the mold.

Our improved mold comprises side and end boards 1 2, respectively, side and end studs 3 4, respectively, braces 5 6 between said studs, near the lower ends thereof, braces 7 8 between said studs, near the upper ends thereof, arch-boards 9 10, supported on said studs 3, and the upper end boards and roof-boards 11, which connect said arch-boards together.

In the construction of a cistern by the use of our improved mold an excavation of suitable length, breadth, and depth is made in the soil. The bottom of the excavation is then covered with grouting composed of sand, cement, and gravel mixed with water to the proper consistency and the same is tamped and forms the bottom of the cistern, the same

being of any suitable thickness. On the floor or bottom of the cistern thus constructed, when the same is sufficiently set, we then dispose a pair of our side boards 1 at suitable distances from the sides of the excavation, usually at a distance of about four inches therefrom, and a pair of end boards 2 at the same distance from the ends of the excavation, the said end boards 2 connecting the side boards 1 together and at their ends bearing against the outer sides of cleats 12, which are secured on the side boards 1 at a distance from the ends of said side boards equal to the thickness of said end boards. The space thus formed between said side and end boards and the sides and ends of the excavation is filled with the grouting and the same is tamped. Before tamping we place the end studs 4 in a vertical position with their lower portions bearing against the inner sides of the end boards 2, at the centers thereof, and the side studs 3 in a vertical position with their lower portions bearing against the inner sides of the side boards 1, at the centers thereof. Said side studs are connected together by a brace-board 6 and said end studs 4 are connected together by a brace-board 5, the same serving to prevent the side and end boards from springing inward. Each of the studs 3 4 is provided on its inner side near its lower end with a cleat 13. The same has a vertical slot or mortise 14, which is open at its upper end. The ends of the braces 5 6 are inserted in said mortises, and the said braces have their ends beveled, as shown in detail in Fig. 4, so that keys or wedges 15 may be inserted in said mortises 14 between said beveled ends of said braces and the insides of said studs. Another pair of side boards are then placed on the lowermost side board, and end boards are placed on the lowermost end boards, and the spaces thus formed between the mold and the sides and ends of the excavation are filled with grouting, tamped as before, and this process is continued until the mold and the sides of the cistern have reached the required height. The studs 3 and 4 are provided on their inner



sides at their upper ends with cleats 16, which are substantially identical with the cleats 13, hereinbefore described, and the brace-boards 7 8, which connect the upper portions of said studs 3 4, respectively, together, have their ends secured in the mortises formed in said cleats 16 and keyed therein.

The upper side boards 1 are provided on their inner sides at suitable distances apart with cleats 17. The upper ends of said cleats and the upper ends of the cleated studs 3 are beveled, as shown in Fig. 2 and in detail in Fig. 5, and on the said beveled upper ends of said cleats 17 and said studs 3 are placed keys or wedges 18. The same support transversely-disposed arch-boards 9, the ends of which bear against the inner sides of the upper side boards 1. The upper end boards 2 are slightly narrower than the other end boards and support end arch-boards 10. Said end arch-boards 10 bear against the outer sides of the upper portions of the end studs 4, and the intermediate arch-boards 9 are provided with central rabbets 19 on their lower sides, which engage brace-boards 7. Longitudinally-disposed roof-boards 11 are then placed on and connect the arch-boards 9 10. Said roof-boards, in connection with said arch-boards, form a frame on which an arched roof for the cistern may be constructed of grouting. An opening 20, to form an entrance to the cistern, is formed in the boards 11 on the center of the arched frame, and the inner and the outer sides of the neck of the cistern are formed by molds 21 22. The inner mold 21 for the neck of the cistern is composed of side boards 23, having cleats 24 on the inner sides near their ends, and end boards 25, which connect said side boards together and bear against the outer sides of said cleats. The outer mold 22, which fashions the outer side of the neck of the cistern, is composed of separable side boards 28, having cleats at their ends on their inner sides, and end boards 26, which connect the ends of said side boards together and bear against the inner sides of said cleats. Tie-bolts 29 connect the side boards together and have cleats 30 at their ends, which bear on the outer sides of said side boards. When the grouting which forms the floor, sides, roof, and neck of the cistern has set and becomes sufficiently hardened, the mold is then removed from the interior of the cistern, the parts thereof being separable, so that the same may be readily disassembled and the keys 15 18 greatly facilitating the disassembling of the parts. The inner and outer neck-molds are then removed. The interior of the cistern is plastered with cement or other suitable material. Earth is filled in over the roof of the cistern to the level of the surrounding ground, and the cistern is then complete.

Each of the side boards 1 may be a single board; but where it is desirable to enable cisterns of different sizes to be constructed on

the same mold said side boards may each compose one or more sections. In the drawings, Figs. 1 and 2, we show each of the side boards 1 as composed of two separable sections 1<sup>a</sup>, which meet on the outer sides of the side studs 3, the latter covering the joint between the said sections. The meeting ends of the sections 1<sup>a</sup> are preferably beveled to facilitate the assembling and disassembling thereof. The ends of the side boards 1 are preferably rounded on their outer sides, as indicated in the drawings. It will be understood that the height of the mold may be varied by varying the number of side and end boards used.

To facilitate the disassembling of the parts of the side and end walls of the mold after the parts of the roof thereof have been disassembled, we bevel the lowermost side boards 1 outwardly on their upper sides, as at 1<sup>b</sup>, Figs. 2 and 6, bevel the upper and lower sides of the second side boards from the bottom outwardly, as at 1<sup>c</sup>, and correspondingly bevel the lower sides of the third side boards from the bottom, as at 1<sup>d</sup>, and in disassembling the side and end walls of the mold the second side boards from the bottom are removed first, the beveled upper and lower sides thereof coacting with the correspondingly-beveled adjacent boards to facilitate the removal of the said second side boards, which would otherwise be extremely difficult, the subsequent removal of the other side boards and of the end boards being easily effected.

Having thus described our invention, we claim—

1. A cistern-mold for shaping the inner sides of cisterns and the like, and having side and end boards separable from each other, studs on the inner sides thereof and separable therefrom and braces connecting said studs, substantially as described.

2. A cistern-mold for shaping the inner sides of cisterns and the like, and having side and end boards separable from each other, studs on the inner sides thereof and separable therefrom, braces connecting said studs, said studs having mortises on their inner sides to receive the ends of said braces and keys between said studs and the ends of said braces, substantially as described.

3. A cistern-mold having side and end walls, cleats on the inner sides of said side walls near the upper sides thereof, arch-boards supported on said cleats and wedge-shaped keys inserted between said arch-boards and said cleats, substantially as described.

4. In a cistern-mold, the combination of side boards having cleats on their inner sides; end boards connecting said side boards and bearing against the outer sides of said cleats; studs disposed against the inner sides of said side and end boards and removable therefrom; longitudinally and transversely disposed brace-boards connecting said end and side studs respectively; arch-boards on the upper end



boards and bearing against the outer sides of the end studs at the upper ends thereof; intermediate arch-boards having their ends supported on cleats on the inner sides of the upper side boards and roof-boards disposed on said arch-boards the whole being adapted to be readily assembled and disassembled, substantially as described.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures to in the presence of two witnesses.

CYRUS HUMMON.  
JOHN A. HUMMON.  
BYRON D. HUMMON.

Witnesses:

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BENJAMIN B. BRUMLEY.