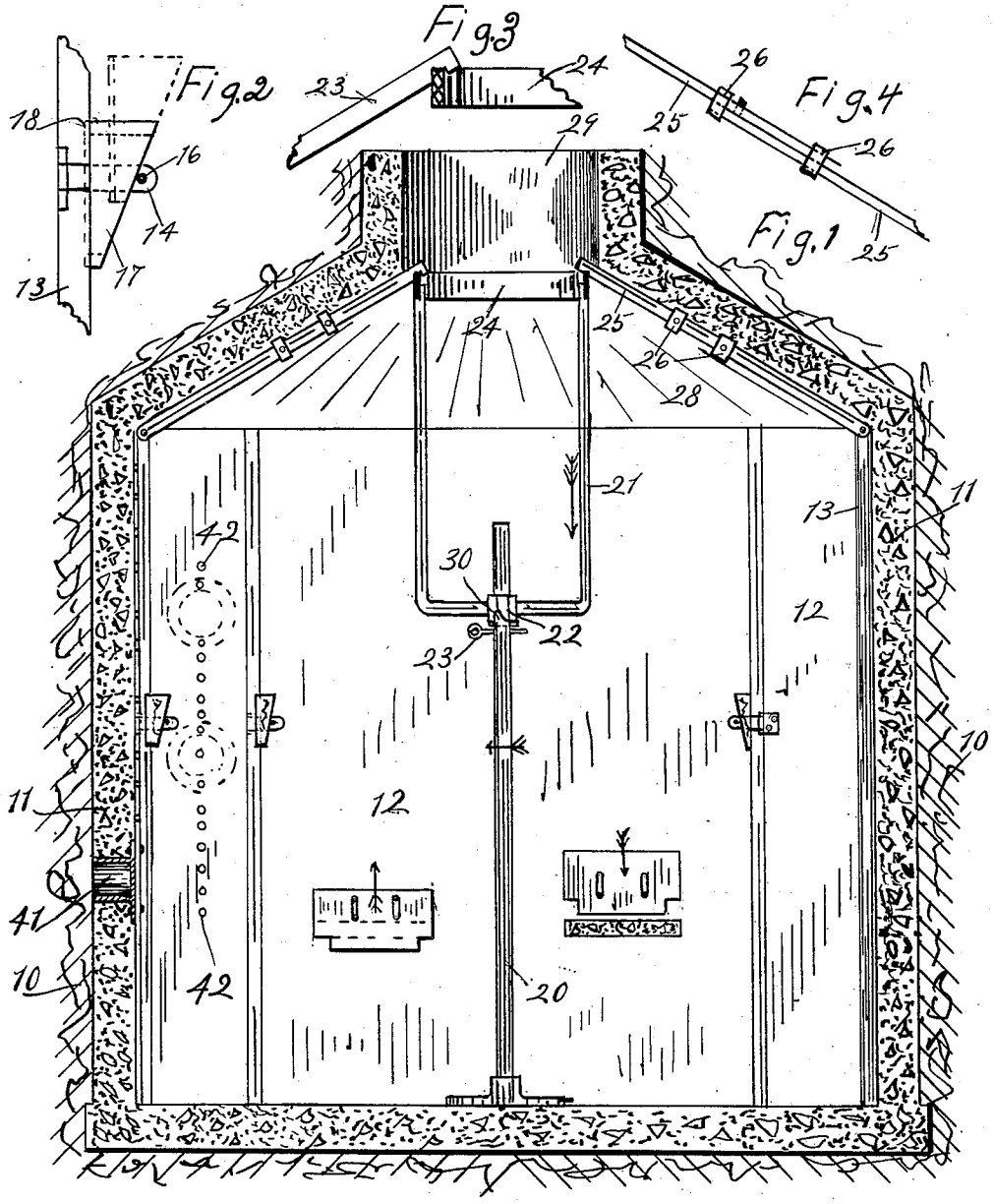
No. 859,043. PATENTED JULY 2, 1907.

G. G. F. BOSWELL.

FORM FOR CISTERNS, SEWERS, AND THE LIKE.

APPLICATION FILED SEPT. 13, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Helen B. McGood.

N. Allemong.

INVENTOR.

George G. F. Boswell.

BY

V. H. Lockwood

ATTORNEY.

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 859,043. PATENTED JULY 2, 1907.

G. G. F. BOSWELL.

FORM FOR CISTERNS, SEWERS, AND THE LIKE.

APPLICATION FILED SEPT. 13, 1906.

2 SHEETS—SHEET 2.

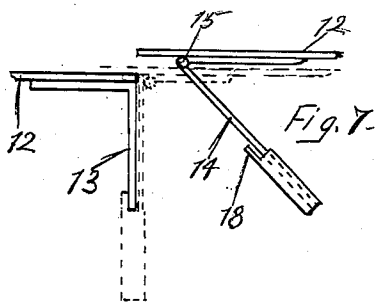


Fig. 7.

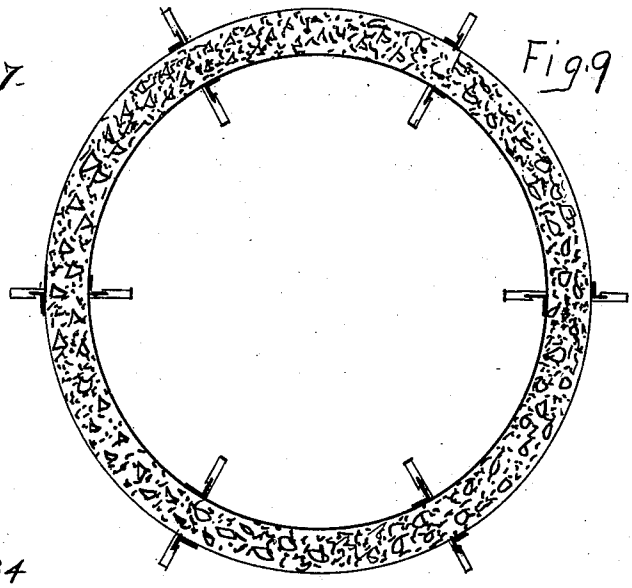


Fig. 9

Fig. 5.

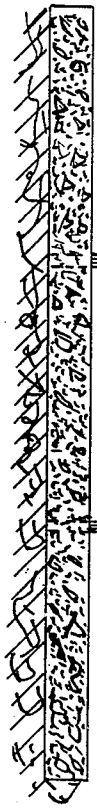


Fig. 6.

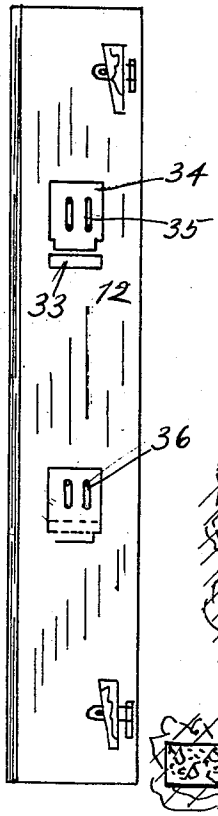
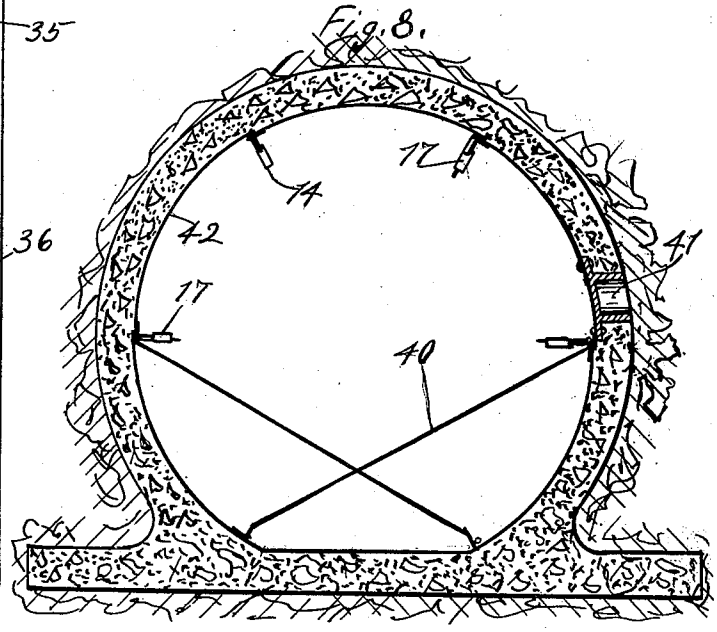


Fig. 8.



WITNESSES:

Helen B. McCord.

N. Allemong

INVENTOR.

George G. F. Boswell.

BY

V. K. Lockwood

ATTORNEY.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE G. F. BOSWELL, OF LAWRENCE, INDIANA.

FORM FOR CISTERNS, SEWERS, AND THE LIKE.

No. 859,043. Specification of Letters Patent. Patented July 2, 1907.

Application filed September 13, 1906. Serial No. 334,392.

To all whom it may concern:

Be it known that I, GEORGE G. F. BOSWELL, of Lawrence, county of Marion, and State of Indiana, have invented a certain new and useful Form for Cisterns, Sewers, and the Like; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to provide a form for cisterns, sewers and the like that is cheap and convenient to construct and is easily set up and taken down.

The full nature of this invention will be understood from the accompanying drawings and the following description and claims:

In the drawings, Figure 1 is a central vertical section of a cistern with the cistern form therein. Fig. 2 is a detail of the releasable means for fastentng or locking the side sections of the form together. Fig. 3 is a detail of a rafter ring for supporting the upper ends of the rafters, parts being broken away. Fig. 4 is a side elevation of the two parts of a rafter at their lap, their ends being broken away Fig. 5 is a vertical section of one side of a cistern or the like after the removal of the form, showing the steps secured thereto. Fig. 6 is an elevation of one section of a cistern form. Fig. 7 is a detail in plan view showing the means for fastening sections of the form in their position as the parts are being brought together for union. Fig. 8 is a central vertical section of a sewer with my form in place therein. Fig. 9 is a horizontal section of a circular structure after it has been built and before the forms on the outside and inside have been removed.

The principle of my invention is the same whether it be used for building cisterns or sewers or any other cement structure.

The first seven figures of the drawings illustrate the construction particularly of cement cistern forms. The earth 10 forms the outer wall and a cistern form the inner wall between which the cistern wall 11 is formed of cement. In the first place the bottom of the cistern is built and upon that the cistern form is erected. After its erection concrete is introduced around the cistern form, between it and a wall of earth, and when the same has set, the cistern form is removed. To remove said form it is necessary that it be collapsible or capable of being taken down from the interior. The vertical or lower portion of the cistern form is made up of sections 12 of substantially the same height as the straight vertical portion of the cistern and of any suitable width and made concave horizontally so that the series of sections when united will be cylindrical or polygonal. Each section 12 along its right-hand vertical edge has an inwardly extending flange 13, as shown in Fig. 7. And each section has on its left-hand edge a plate 14 that is pivoted or hinged to said section at 15, the plate 14 being substantially similar to one-half of an ordinary leaf-hinge as seen in Fig. 2 and in its outer end has a lug 16 like a bolt extending beyond both sides of the plate. A wedge-shaped or tapering locking block 17 rests upon said plate 14, said block being centrally and vertically slotted throughout its width as shown by dotted lines in Fig. 2 and said plate having along its left-hand rear edge a flange 18, indicated by dotted lines in Fig. 2, which overlaps the flange 13 on the section 12 as shown in Fig. 1. This fastening is such that when the locking block 17 drops down by gravity, it wedges in between the lug 16 and the flange 13 on the section 10, and locks the edges of an adjacent pair of sections together. This fastener is such also that it may be readily released after the cistern has been formed by knocking upward on the block 17 to loosen it and disengage it from the flange 13 of one of the sections. After the cylindrical side walls of the form has been put in place the top is constructed as follows: A post 20 with a widened lower end is placed in the center of the bottom of the cistern. It carries at its upper end a U-shaped frame having two upwardly extending bars 21 fastened to a sleeve 22 that is slidable on the post 20 and is supported thereon by a pin 23 which is placed in any one of a series of holes through said post, so that the frame may be placed at the desired elevation. A top ring 24 is secured on the upper end of the frame 21 so as to furnish a support for the upper end of the rafters 25 that are notched, as shown in Fig. 3, to rest upon said ring. The rafters are formed in two sections telescopic and overlapping and connected by the keepers 26 secured thereto as shown in Fig. 4. The lower end of each rafter is pivoted to the upper end of the flange 13 on a sufficient number of the sections to furnish a support for plates 28 that rest upon said rafters and upon which concrete may be deposited. A circular mold 29 is placed upon the upper end of the rafters to form the mouth of the cistern. After the cement has set and earth has been thrown upon the roof of the cistern the form within the cistern is taken down. First the post 20 is turned so that the pin 23 will turn in the notch 30 in the sleeve 22 of the frame 21. That will lower said frame somewhat and loosen the rafters whereby they may be taken down and the plates 28 which are formed in sections small enough to pass into the mouth of the cistern or likewise removed. Then the fasteners of the side sections are released and said sections removed. I form steps or a ladder in a cement wall or cistern by inserting the inner end of loops 32 inwardly through slots 33 in the section 12. In such case the two ends of the loop 32 extend rearwardly from the section 12 to or towards the earth wall. Said loop is locked and

held in position by the lower reduced end of a plate 34 mounted on the inner surface of said section so as to be vertically slidable somewhat. Thus as shown in Fig. 6, such plate 34 has two vertical slots 35 through which pins 36 extend from the section 12, so that said plate 34 can be elevated for inserting a loop 32 and will drop into said loop by gravity and hold it. In this way any number of loops or steps 32, one above the other, may be formed in the wall so that a person may readily climb up or down the wall.

The modified form shown in Fig. 8 shows the use of my invention in building a sewer or like structure, the form therein differing from the cistern form only from the fact that sections extend horizontally instead of vertically in the sewer and are braced by the braces 40 that at their ends are bolted to the sections and hold the group of sections circular to prevent the collapsing of the same. The form is not wholly cylindrical but horse-shoe shaped, the lower part being open and the lateral edges thereof resting upon the cement floor or bottom of the sewer. After a section of the sewer has been constructed, a person enters the sewer and removes the braces and fasteners of the sections and then takes out the sections. For connecting a branch sewer I provide on a section 12 of the form for sewers a collar-like form 41 so that the cement will form around it and leave an opening through the sewer for the branch.

In Fig. 9 I show the use of my form on both the inside and outside of a circular cement structure. Both walls of the form shown in Fig. 9 are constructed and arranged like the form for the wall in the cistern and, hence, it needs no further explanation.

In making catch basins either the form shown in Fig. 1 or that shown in Fig. 9 may be employed. In either case I provide some of the sections 12 with a row of vertical holes 42, as shown in Fig. 1 so I can bolt at the desired places the collar-like form 41 to provide an opening through the concrete wall when finished through which a conduit may discharge into the catch basin.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a sectional form for building cement cisterns, sewers and the like, a releasable fastener for connecting the sections that consists of a flange extending at a right angle from the edge of one section, a plate hinged to the other section near its edge, a stop lug in the free end of said plate, and a wedge-shaped locking block mounted on said plate so as to be vertically movable and overlap said flange.

2. In a sectional form for building cement cisterns, sewers and the like, a releasable fastener for connecting the sections that consists of a flange extending at a right angle from the edge of one section, a plate hinged to the other section near its edge, a stop lug in the free end of said plate, and a wedge-shaped locking block centrally and vertically slotted to receive and be mounted upon said plate and having on one side a lip or extension adapted to overlap and engage said flange.

3. In a form for cement cisterns, sewers and the like, the combination with sections provided with transverse slots therein one above the other adapted to receive looped bars for ladder steps, locking plates with reduced lower ends adapted to enter said loops, and means for mounting said plates on said section immediately over said slots so as to be vertically slidable whereas said plate may be moved vertically into or out of engagement with said loops.

4. In a sectional form for building cement cisterns and the like, means for forming the side walls, rafters formed of two parts telescoping with each other and with the lower end mounted upon the top of said side wall, a ring for supporting the upper ends of said rafters, a form mounted on said rafters for forming the mouth of the cistern, a yoke on the upper end of which said ring is mounted, and a removable post with which said yoke is movably connected for supporting said yoke, ring, rafters, and mouth mold.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

GEORGE G. F. BOSWELL.

Witnesses:

NELLIE ALLEMONG,

HELEN B. MCCORD.