W. S. Follensbee.

Cistern.

No. 59,578. Patented Nov. 13, 1866.

Fig. 2.

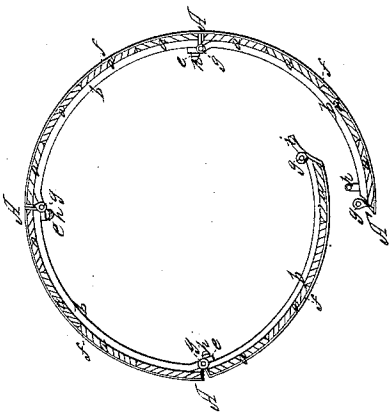


Fig. 3.

Fig. 4.

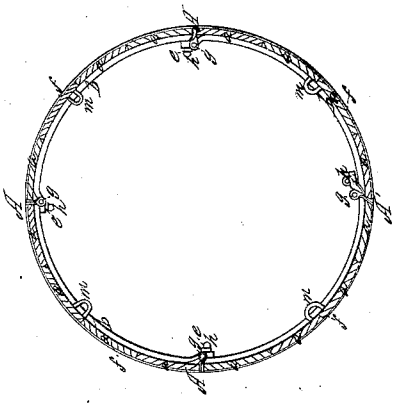


Fig. 4a.

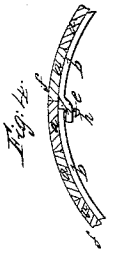
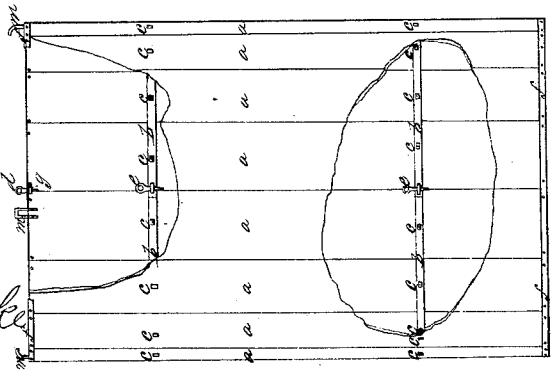


Fig. 1.



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UNITED STATES PATENT OFFICE.

W. S. FOLLENSBEE, OF JANESVILLE, WISCONSIN.

IMPROVED GROUTING-FORM FOR WELLS.

Specification forming part of Letters Patent No. **59,578**, dated November 13, 1866.

To all whom it may concern:

Be it known that I, W. S. FOLLENSBEE, of Janesville, in the county of Rock, in the State of Wisconsin, have invented a new and Improved Grouting-Form; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in constructing a grouting-form in such a manner in sections that when a series of two or more forms are used in a well the lower form may be taken apart or collapsed sufficiently to admit of its being drawn up within the upper forms and again placed in position above them, so allowing the work to be progressing above while the grout in the lower forms is setting, and without waiting, after all the forms have been used, twenty-four hours or any other time for the grout in or back of the upper forms to "set" before the lower forms can be used.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, referring to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation with parts broken away to show interior arrangement. Fig. 2 is a top view of the form when set for grouting. Fig. 3 is a top view of the form, showing how it is collapsed or taken apart. Fig. 4 is a horizontal section made just above the ribs, showing how they are joined; and Fig. 5 is an interior view of the ribs, showing the same as Fig. 4.

I construct my grouting form or tub ordinarily in four equal sections of staves, *a*, supported by strong metallic ribs *b*, that extend quite across each section. I secure these sections together to form the tub by joining the ribs, as shown in Figs. 4 and 5. To accomplish this I turn one end of each rib in or toward center of tub, and form it into a spur or bolt, *h*, that is pivoted in the end to receive a key, *e*, while the adjacent end of the corresponding rib on the next section is upset, after the manner shown in Fig. 4, and is pierced with an eye that receives the spur or bolt *h*. This spur is securely retained within the eye and the sections firmly joined, as at A, Figs. 2 and 3, by inserting the key *e*. To separate the sections it is only necessary to withdraw the keys. To enable them to be taken apart or collapsed when subjected to an inward pressure, one of the joints, as A′, Figs. 2 and 3, is made beveling, as shown.

The keys *e* have their upper parts pierced with an orifice or formed into a ring, as shown in drawings, to enable the operator to withdraw them by means of a hook from the top of the tub, or even from the top of the well.

To prevent the staves *a* from warping and twisting out of place, I encircle the ends of the sections by a metallic hoop or band, *f*. These bands are turned in at the edge of the sections and ordinarily joined on the inside of the form or tub, after the manner of the ribs, as shown in Figs. 2 and 3.

When in use, ordinarily, I employ four of these forms or tubs, each of them about six feet long, and commence by placing one of them, set up, in the bottom of the well to be grouted, and proceed to fill the space in back of the form and between it and the curbing or wall of the well, with liquid cement and gravel or broken stone. After filling to the top of the form I put another in position on the top of the first, and proceed to fill back of it as before, so continuing until all the forms have been used, by which time, the grout back of the lower form having set, I lower a hook within the tubs and withdraw the keys *d* and *e* from the joint A′ of that form, and allow it to collapse sufficiently to permit its being drawn up within the upper forms and placed in position above them to be used again as before; or I take the form entirely apart, after which I draw up another or the next lowest form, and so continually drawing up the lowest form as it may be needed, and allowing the work to progress without interruption or cessation. I raise the forms by means of hooks that are lowered to catch in the staples or handles *m*. (Shown in Fig. 2.) These handles or loops serve also the very important purpose of a guide in placing and a stay in holding the forms in position directly above each other.

I am aware that some of the grouting-forms in use are constructed so as to collapse; but one and all of them, in consequence of an interior cross-bar or some other defect, are inca-

pable of being used after the manner hereinbefore indicated. Consequently, when employed, and all the forms have been used, the work of grouting must entirely cease for twenty-four hours, or until the grout in back of the upper form has set, before any, even the lowest, form can again be used.

What I claim as new, and desire to secure by Letters Patent, is—

The combination and arrangement of the staves *a*, ribs *b*, hoops *f*, and keys *d* and *e*, substantially as and for the purpose set forth.

W. S. FOLLENSBEE

Witnesses:
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