

(No Model.)

F. GIREIN.
CAISSON.

No. 409,190.

Patented Aug. 20, 1889.

FIG. 1

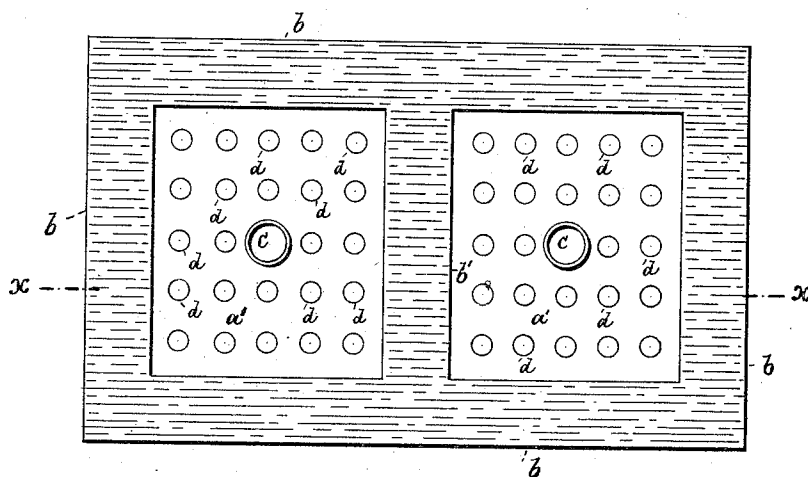
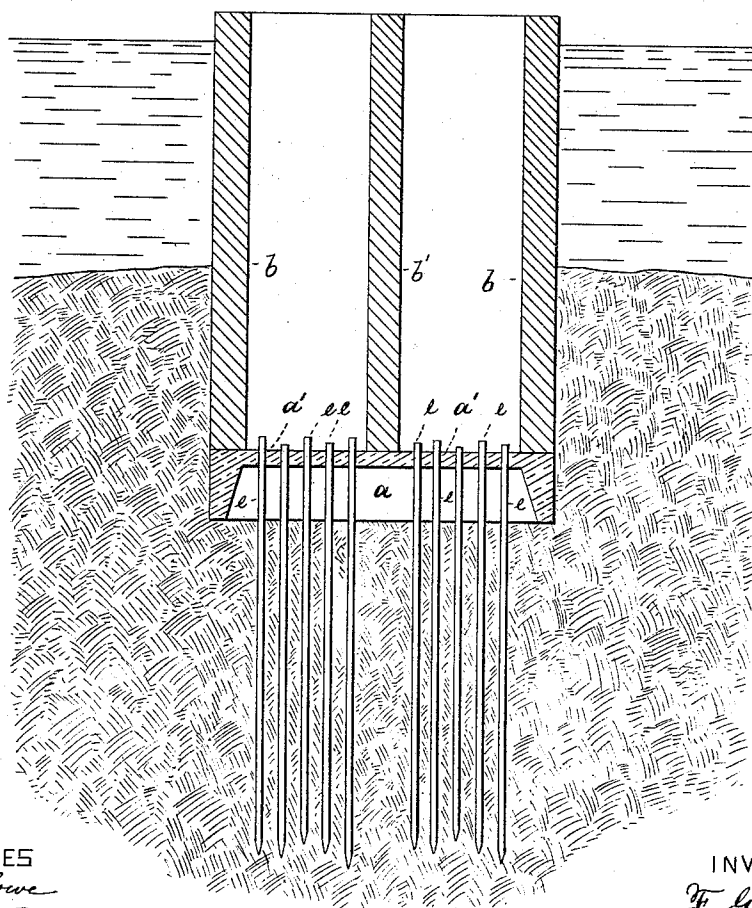


FIG. 2



WITNESSES

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To all whom it may concern:

Be it known that I, FRANZ GIREIN, a citizen of Great Britain, residing at New York, county and State of New York, have invented an Improved Caisson, of which the following is a specification.

This invention relates to a caisson so constructed that after being sunk to its greatest depth piles may be driven bodily through it, so as to give to it either a cheaper or a deeper foundation.

The invention consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a top view of my improved caisson. Fig. 2 is a longitudinal section on line *xx*, Fig. 1, drawn on one-half the scale.

The letter *a* represents the working-chamber of my improved caisson, being open at the bottom, as usual, and provided with the top or ceiling *a'*, that constitutes the floor for the superstructure. Upon the floor *a'* there is built a stone wall *b*, of rectangular form, as shown. This wall is built along the edge of the floor, is of suitable thickness, and incloses an open central chamber, which may, however, be traversed by the partition-wall *b'*. The height of walls *b* *b'* should, of course, be gradually increased as the caisson is sunk, so that the walls reach ultimately above the water-level.

It will be seen that the main portion of the floor *a'* is not covered up by the superstructure, as is usually the case, but that it remains exposed within wall *b*. Through the floor *a'*, I make, preferably, two man-holes *c*, which are provided with the necessary tools. The man-holes also serve for gaining access to the working-chamber and for the removal of the soil, &c.

Besides the man-holes *c*, I form a large

quantity of smaller perforations *d* through the floor *a'* within the chamber inclosed by wall *b*. Each of these perforations must be temporarily closed air-tight by a suitable plug. While the caisson is being sunk these perforations are kept tightly closed, so that the air from the working-chamber cannot escape through them; but after the caisson has been sunk to its maximum depth piles *e* are driven through the perforations *d*. These piles on being driven knock the plugs out of their seats.

It will be seen that my improved caisson is resting on or anchored by a solid pile foundation, which is put in place after the caisson has been completely sunk. Moreover, every foot through which the piles are driven represents a gain in the depth of the foundation, and therefore a cheaper solid structure is obtained and a deeper and safer foundation is laid.

After the piles have been driven the working-chamber is filled up with concrete, and the space within wall *b* may also be filled up by a suitable material.

What I claim is—

1. The combination of a working-chamber *a*, having ceiling *a'*, with a superstructure *b*, that partially exposes the ceiling *a'*, and with the perforations *d* made within the ceiling for the reception of piles, substantially as specified.

2. The combination of working-chamber *a*, having ceiling *a'*, with the stone wall *b* built upon the ceiling *a'* to inclose a chamber, and with the man-holes *c* and the pile-holes *d* made through ceiling *a'* within the chamber, substantially as specified.

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Witnesses:

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