

No. 633,298.

Patented Sept. 19, 1899.

W. D. H. WASHINGTON.

CAISSON AND METHOD OF SINKING SAME.

(Application filed Dec. 6, 1897.)

(No Model.)

Fig. 1.

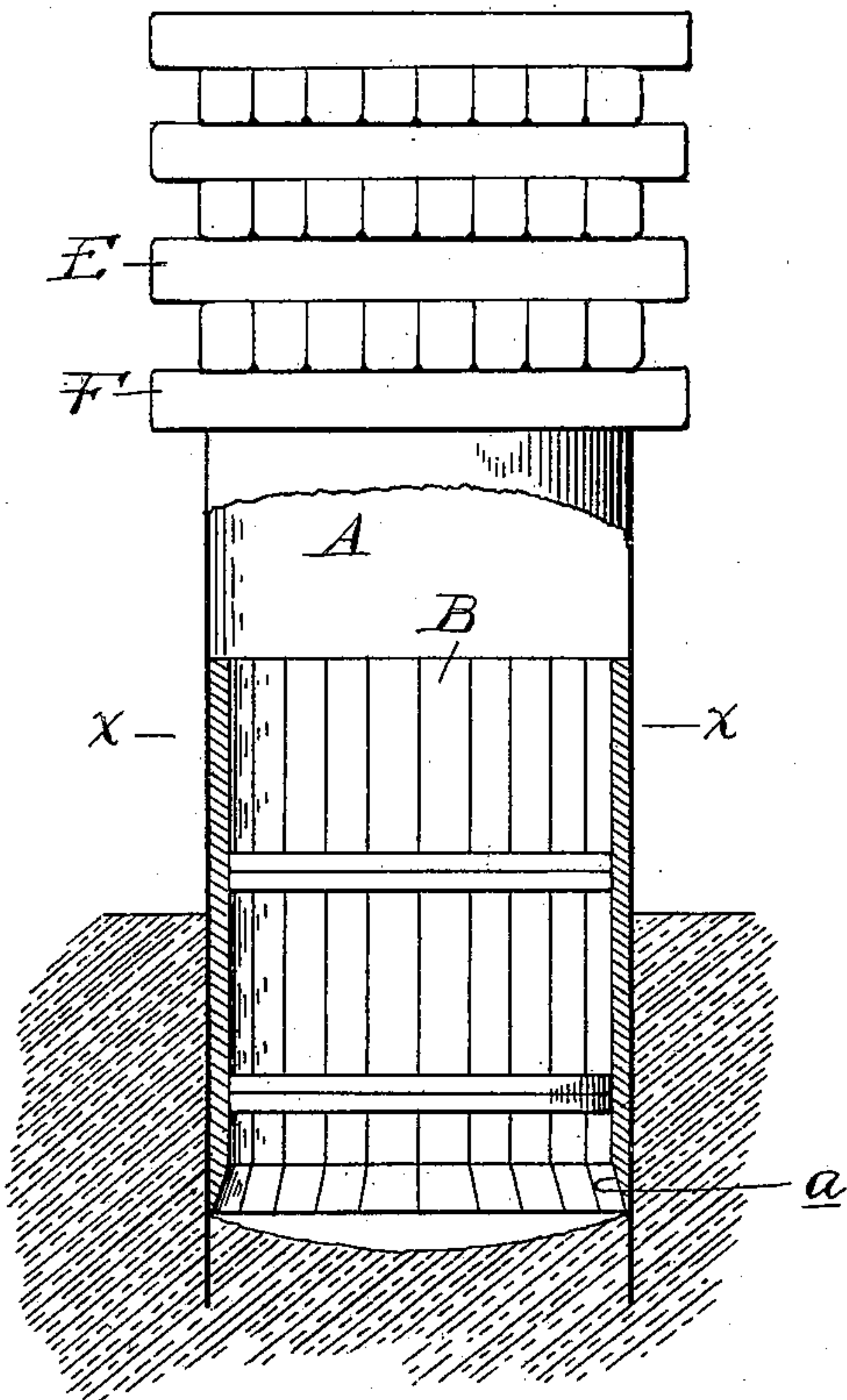


Fig. 2.

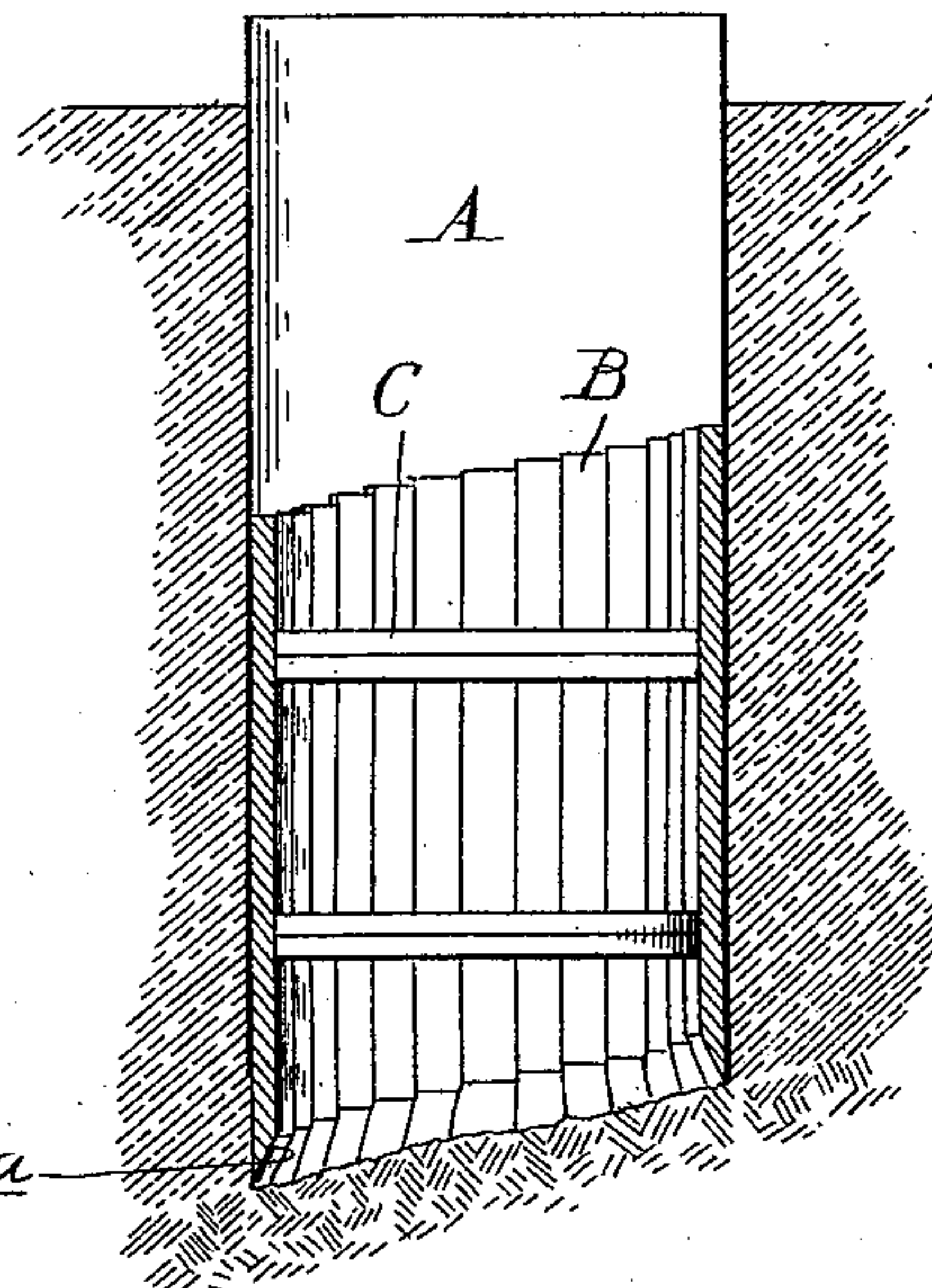


Fig. 3.

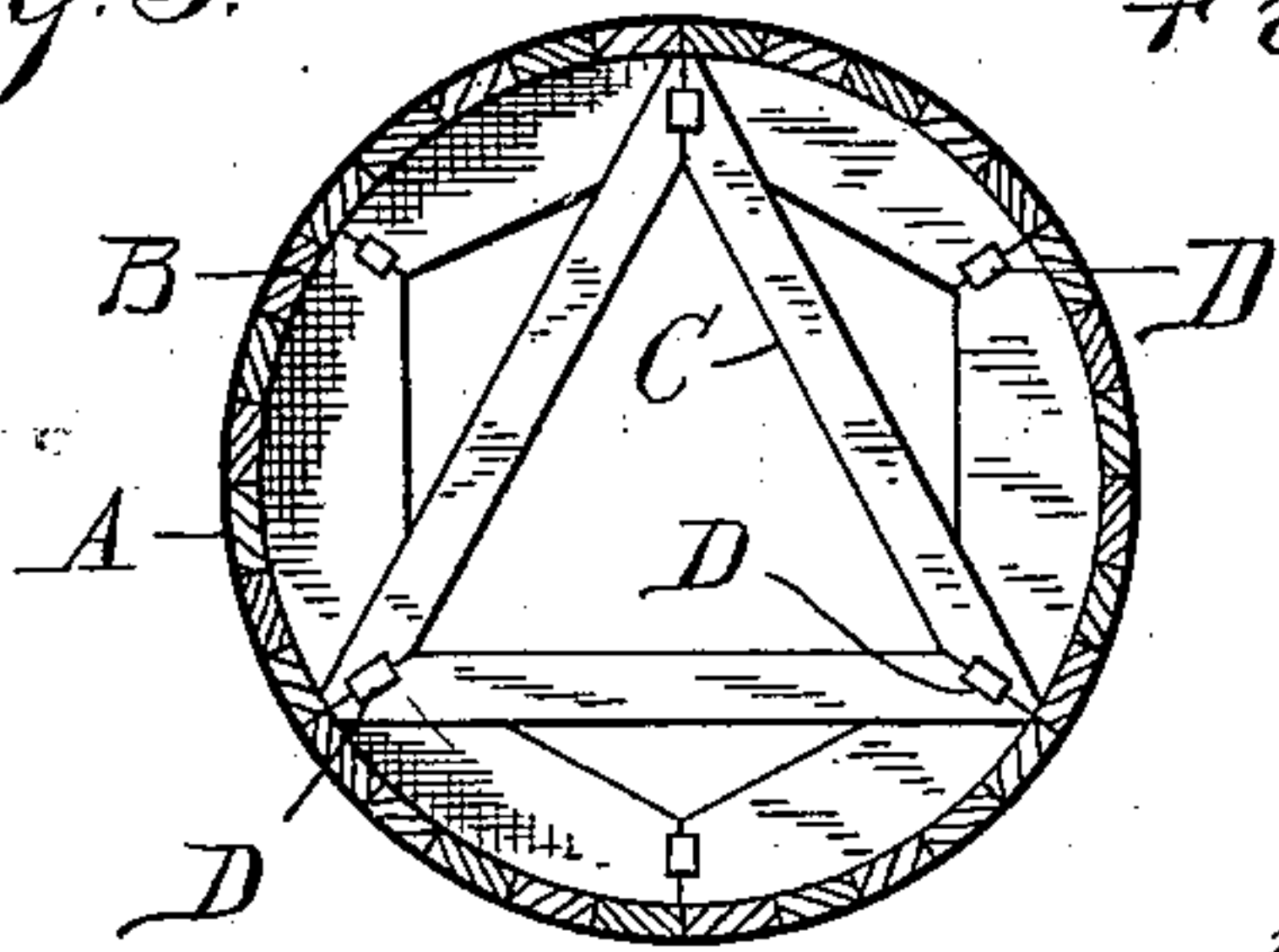
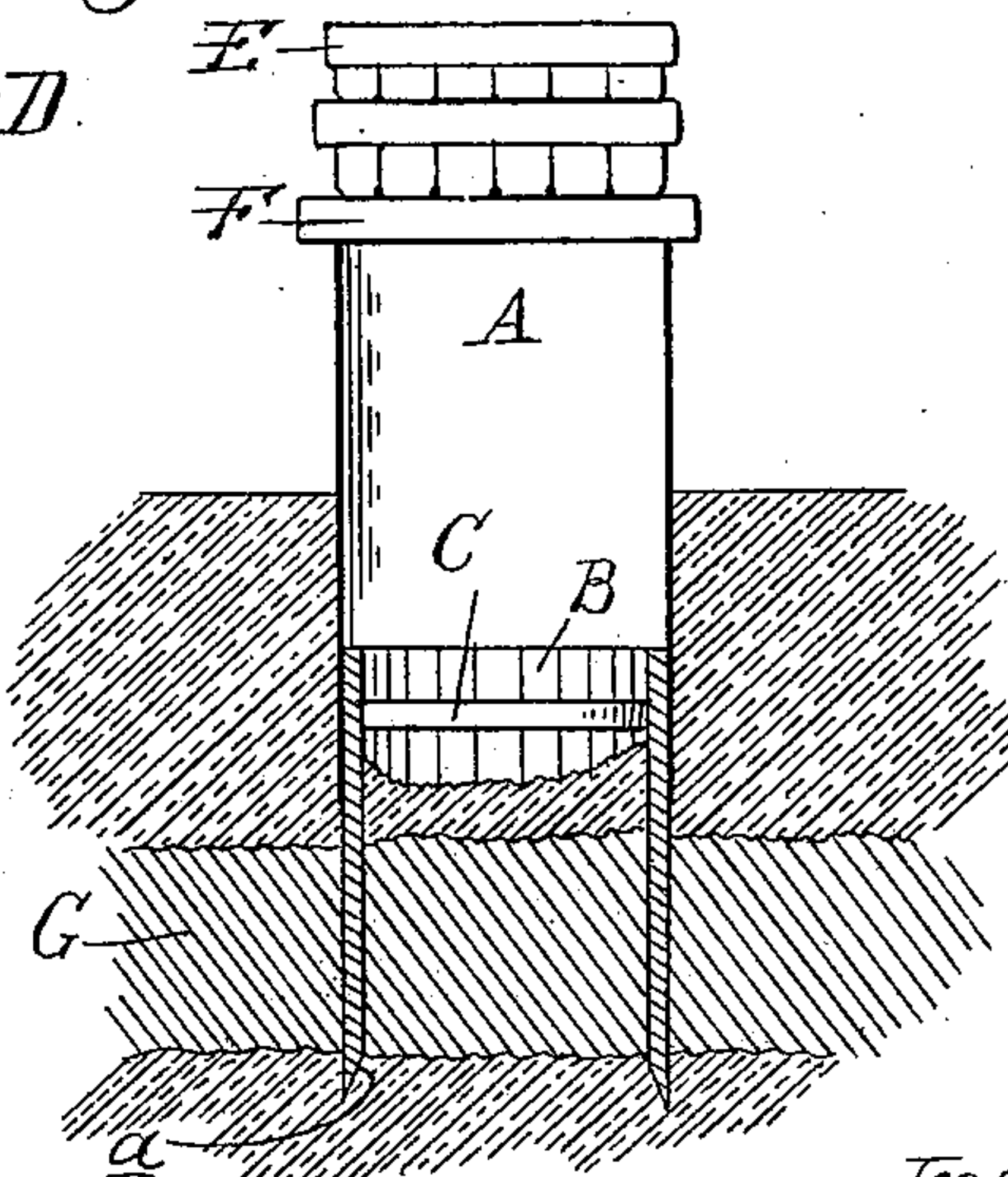


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## CAISSON AND METHOD OF SINKING SAME.

SPECIFICATION forming part of Letters Patent No. 633,298, dated September 19, 1899.

Application filed December 6, 1897. Serial No. 660,991. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM D. H. WASHINGTON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Caissons and Methods of Sinking the Same, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the construction and method of sinking caissons—such, for instance, as are employed in the construction of pier foundations.

It is the object of my invention to sink the caissons without the necessity of digging in advance of them or the employing of the hydraulic method; also, to provide means for sinking them through quicksands or "runs;" also, to conform the lower edge of the caisson to the shape of the bed-rock where the latter is rough or inclined, so that all sides of the caisson will be in contact with said rock.

To this end my invention consists in the apparatus and method of operation hereinafter described.

In the drawings, Figure 1 is a sectional elevation of my caisson in the process of sinking. Fig. 2 is a similar view with the caisson sunk into position. Fig. 3 is a cross-section on line *xx* of Fig. 1. Fig. 4 is a view similar to Fig. 1, illustrating the manner of sinking the caisson through a layer of quicksand.

A is the outer shell of the caisson, preferably consisting of a cylinder formed of sheet-steel. Within this outer shell is a lining or sheathing, preferably composed of narrow staves of wood B, arranged around the inner surface of the shell and held in position by suitable bracing, such as shown at C, suitable wedges D being provided for forcing the lining into firm contact with the shell. This lining need extend but a portion of the length of the shell and is normally arranged with its lower edge a short distance above the lower edge of the shell. Each of the staves is preferably beveled to a point *a* at its lower edge.

To sink the caisson, a shallow excavation is made, into which the caisson is lowered.

Weights E are then placed upon the caisson, which may be piled on timbers F, resting on the upper edge of the shell, sufficient open space being left through which the earth forming the core may be removed. The weight applied to the caisson is sufficient to overcome the skin friction of the outer surface of the shell and to force its lower edge a greater or less distance into the solid earth. The workman may then proceed to remove the inner earth core, the caisson always lowering in advance of the excavation.

In case a run or layer of quicksand (indicated at G, Fig. 4) crosses the path of the caisson, this may be bridged in advance of the shell by loosening the wedges D and driving down the staves B separately by hammer blows. This will form a coffer-dam, which will prevent the quicksand from welling up inside the caisson while the shell is being lowered.

It frequently happens that the upper surface of the bed-rock is irregular in shape or is inclined, so that when the lower edge of the shell comes in contact with the rock at one point it may be some distance away at other points. To avoid this, the staves B may be driven down into contact with the rock, thus conforming the lower edge of the caisson to the shape of the rock.

When the caisson is sunk into position and the earth core is removed, the interior space may be filled with solid masonry to form the pier.

What I claim as my invention is—

The herein-described method of sinking caissons which consists in applying to an outer shell provided with a lower cutting edge sufficient weight to sink it upon the removal of a portion of the earth core of then driving an inner lining in advance of the outer shell to form a coffer-dam and in then removing the core.

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

WILLIAM D. H. WASHINGTON.

Witnesses:

B. W. INGLE,

E. G. WILHELM.