

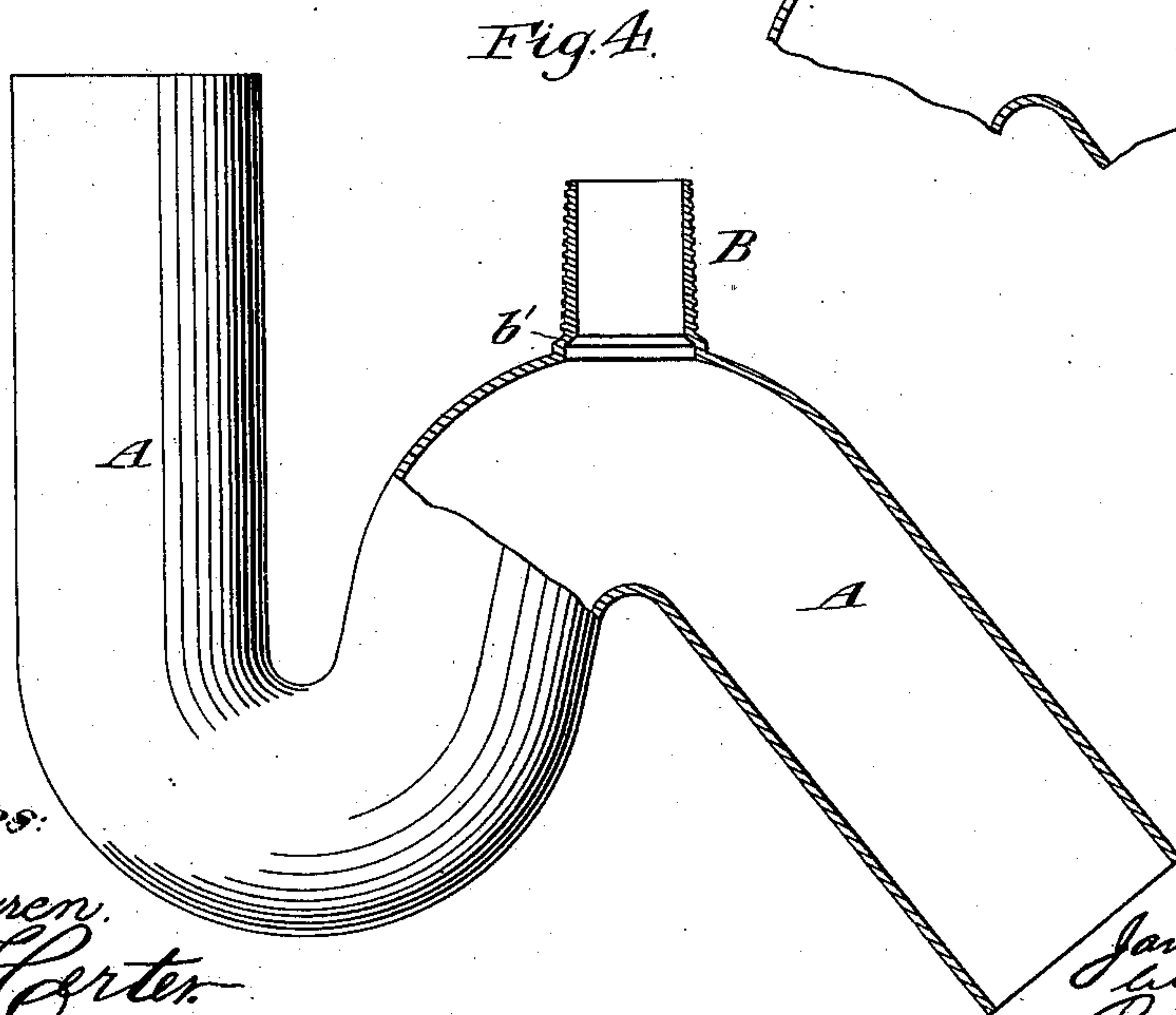
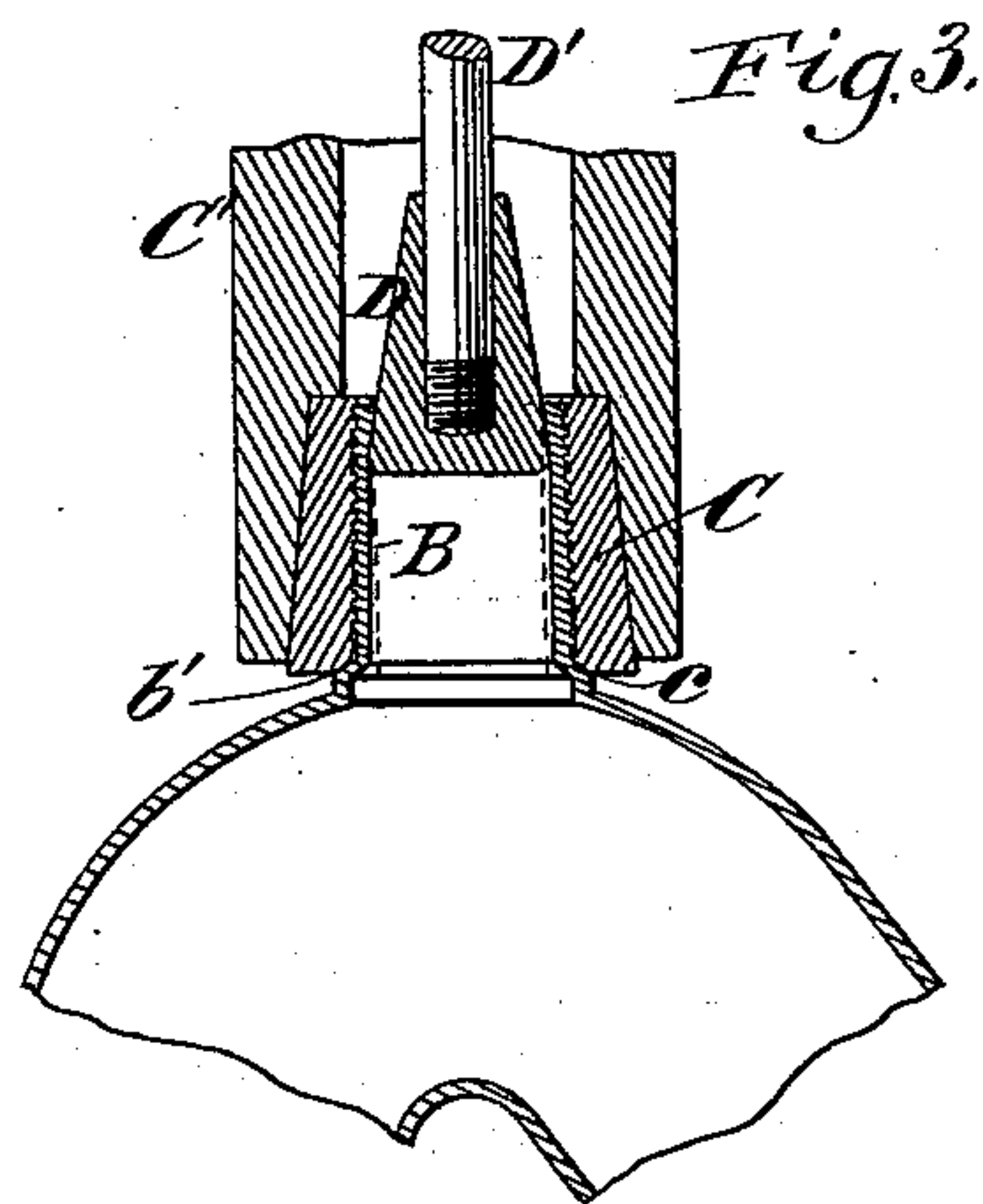
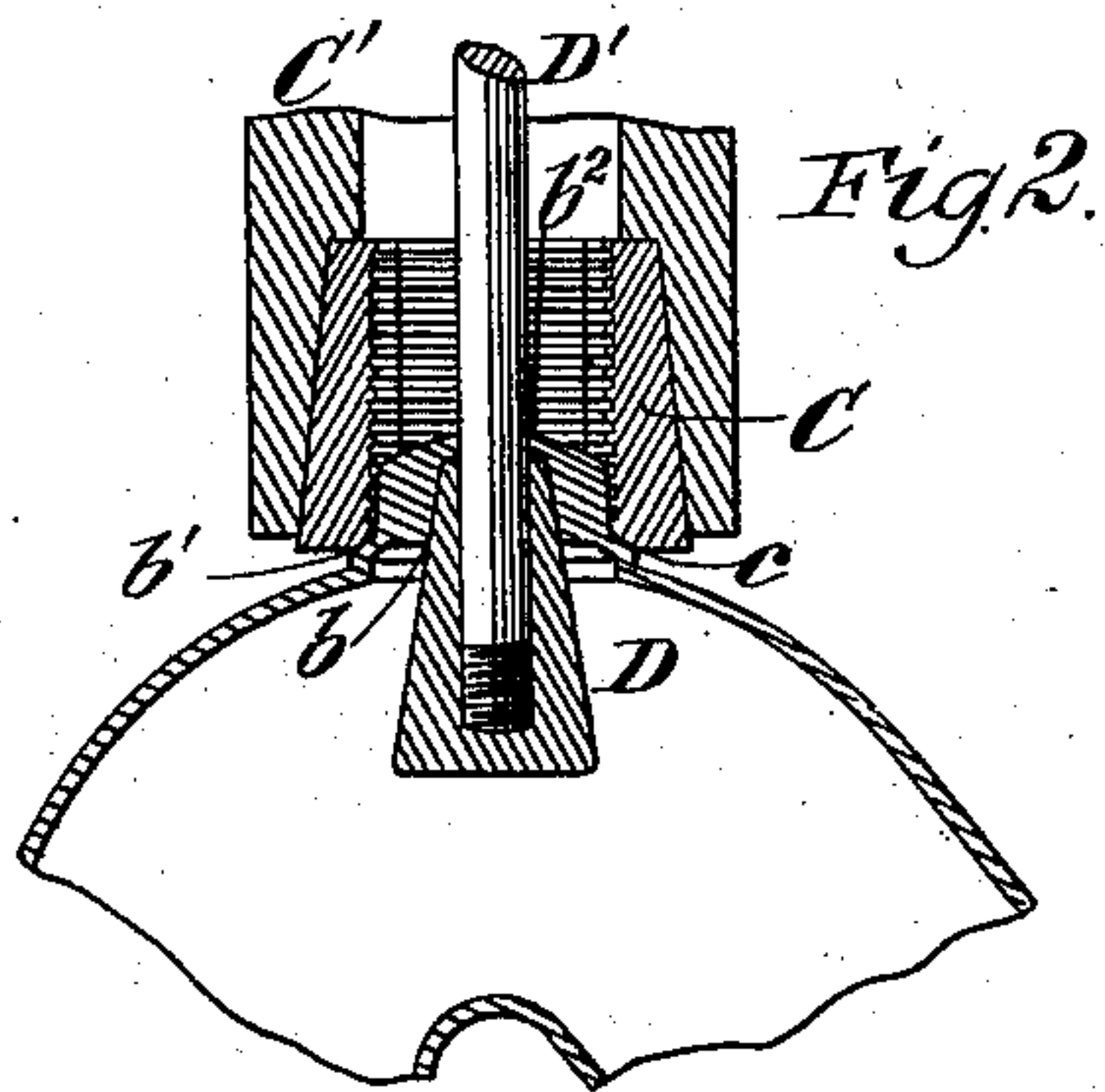
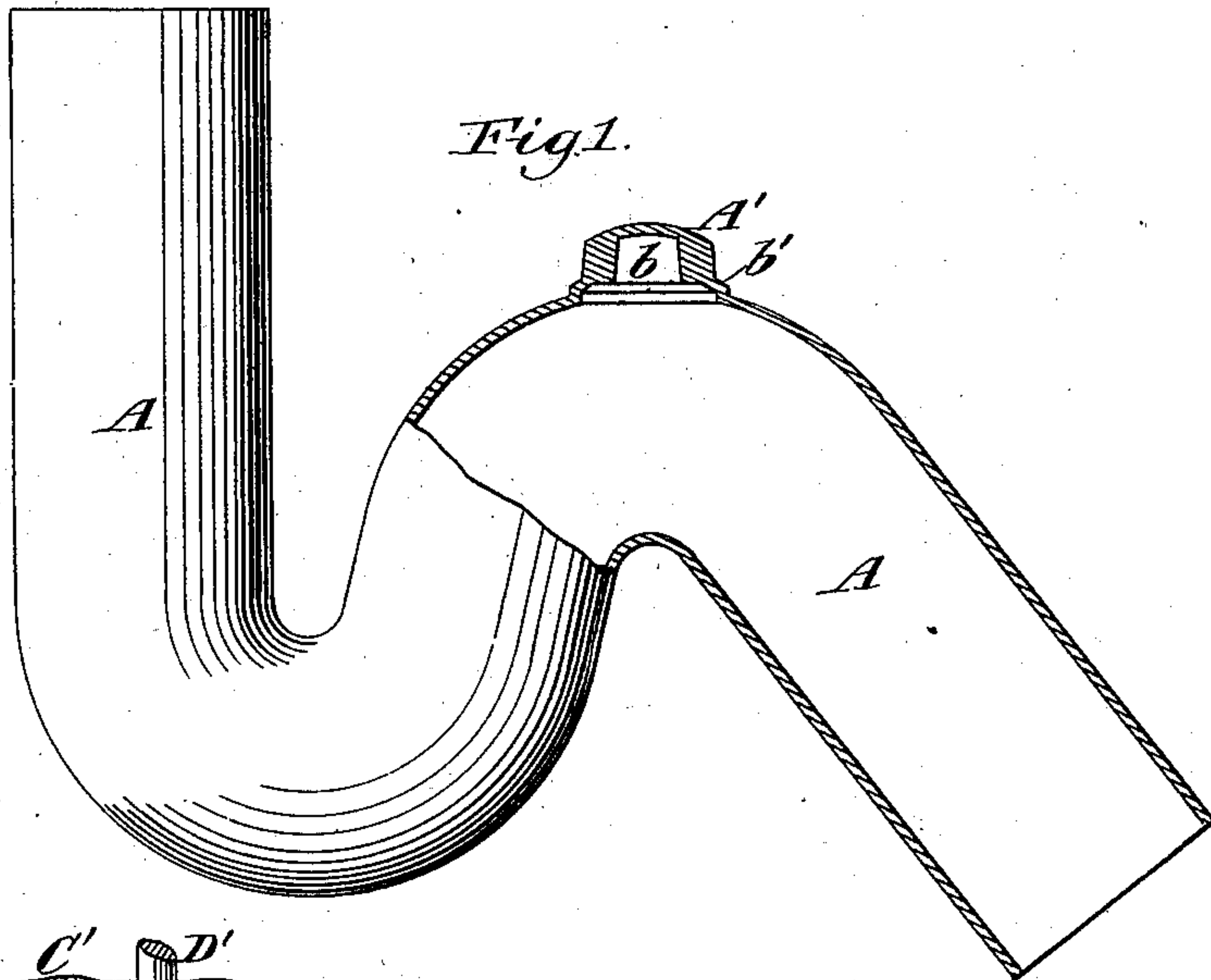
(No Model.)

J. A. LOWE.

METHOD OF MAKING LEAD TRAPS.

No. 376,203.

Patented Jan. 10, 1888.



Witnesses:

O. Sundgren.
Emil Herter.

Inventor:

James A. Lowe.
By his attys
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UNITED STATES PATENT OFFICE.

JAMES A. LOWE, OF NORTH BRANCH, NEW JERSEY.

METHOD OF MAKING LEAD TRAPS.

SPECIFICATION forming part of Letters Patent No. 376,203, dated January 10, 1888.

Application filed May 12, 1887. Serial No. 237,970. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. LOWE, of North Branch, in the county of Somerset and State of New Jersey, have invented a new and useful Improvement in the Method of Making Lead Traps, of which the following is a specification.

As most commonly constructed, traps for water-closets and other purposes have a branch with which may be connected a pipe leading upward to the roof of the building, and it has been common heretofore for plumbers to solder a small vent branch formed in a separate piece upon the top of the trap, and then flange the branch over and connect therewith, in any suitable manner, the pipe leading to the roof. My trap in this respect does not differ from those commonly employed; but the novelty of my invention consists in the method or process of making a trap having a vent branch formed integral therewith, consisting in first producing the trap with a hub or thickened portion upon it, and then subjecting the hub or thickened portion to a drawing operation, whereby the metal thereof is systematically displaced, so as to form a vent branch which is integral with the trap. As the drawing operation to which the thickened portion or hub is subjected would otherwise tear and break the metal forming the hub or projection, I subject it to a drawing operation in a die having a roughened or corrugated interior surface, and as fast as the hub or projection is drawn into this die in the drawing operation it engages with the roughened or corrugated interior surface thereof, and forms a resistance additional to the strength of the metal, and which prevents it from being drawn apart and spoiled.

In the accompanying drawings, Figure 1 is a partly-sectional elevation of a cast-metal trap having formed upon its top a hub or thickened portion from which the vent branch is to be produced by drawing. Figs. 2 and 3 are sectional views corresponding with each other, but illustrating a portion only of the trap and the tools whereby the drawing operation is performed; Fig. 2 representing the parts as in the position which they occupy at the commencement of the drawing operation, and Fig. 3 representing the position of the parts near the completion of the drawing operation. Fig.

4 is a partly-sectional elevation of a completed trap embodying my invention.

Similar letters of reference designate corresponding parts in all the figures.

A designates a trap of cast-lead, of the usual form, except at the top of the bend is a hub or thickened portion, A', having a central cavity, b, and an external shoulder, b'. The essential feature of novelty in my invention consists in producing a trap with a hub or thickened portion, A', and then subjecting such hub or thickened portion to an operation on an ordinary drawing-bench, or otherwise. As it is only necessary that the drawing operation should be slow and powerful, it is not necessary to describe the whole mechanism whereby the drawing is accomplished, but only the immediate tools whereby from the thickened portion or hub A' is produced an integral vent branch, B. (Represented in Fig. 4, and also as nearly completed in Fig. 3.)

The tools whereby the drawing is performed consist of a die, C, and a mandrel or core, D. The die C has its interior corresponding to the exterior of the branch B, and is fitted in a holder or socket, C'. This die is also preferably divided axially into three or more parts, and such division provides for readily removing the die from the exterior of the branch B, although, when in operation, the parts of the die are held in proper position by the holder C'. The mandrel or core D is of smooth taper form, and has its smaller end of a size to fit within the cavity or recess b, (shown in Fig. 1, and also in Fig. 2,) and its larger end corresponding to the interior bore or diameter of the branch B, as shown completed in Fig. 4. This mandrel or core may be readily introduced through the open end of the trap A, and in the hub or thickened portion A' is bored a hole, b², which is of sufficient size to receive a rod, D'. The core or mandrel having been introduced through the open end of the trap, it is screwed or otherwise secured upon the rod D', and if now the parts be subjected to a drawing operation the thickened portion or hub A' will be changed into the form of the vent branch B shown in Fig. 4. The die C has a shoulder, c, which is of proper shape to receive the shoulder b', and the drawing or distortion of the metal takes place entirely in the

part above the shoulder *b'*. If the interior of the die C were smooth, the drawing operation, owing to the low degree of tenacity in the lead, would tear the hub or thickened portion A' away from the pipe at the shoulder *b'*; but to avoid this result the interior of the die C is corrugated by grooves or a shallow screw-thread formed therein, and in the drawing operation the branch B is forced into this roughened die, and has a correspondingly corrugated or roughened surface. The crowding of the metal into the corrugated or roughened surface sustains it at the point of drawing, and the metal in the hub or thickened portion A' cannot come away with the core or mandrel D, but is simply displaced or forced solidly against the wall of the die C.

In Fig. 2 I have represented the thickened portion or hub A' and the core or mandrel D in the position which they occupy at the commencement of the drawing, and in Fig. 3 I have represented the parts as in the position which they occupy at very near the completion of the drawing operation.

It will be understood that the core or mandrel D is simply drawn through the die C, dis-

placing the metal of the hub A', and forming therefrom the branch B, having its interior preferably truly cylindric and its exterior very slightly tapered toward the upper end.

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

1. The process of making a trap having the vent branch formed integral therewith, consisting in first producing the trap with a hub or thickened portion upon it, and then subjecting such hub or thickened portion to a drawing operation, substantially as herein described.

2. The process of making a trap having a vent branch formed integral therewith, consisting in first producing the trap with a hub or thickened portion upon it, and then subjecting such hub or thickened portion to a drawing operation in a die having a roughened or corrugated interior surface, substantially as herein described.

JAMES A. LOWE.

Witnesses:

C. HALL,

MINERT LINDEMAN.