

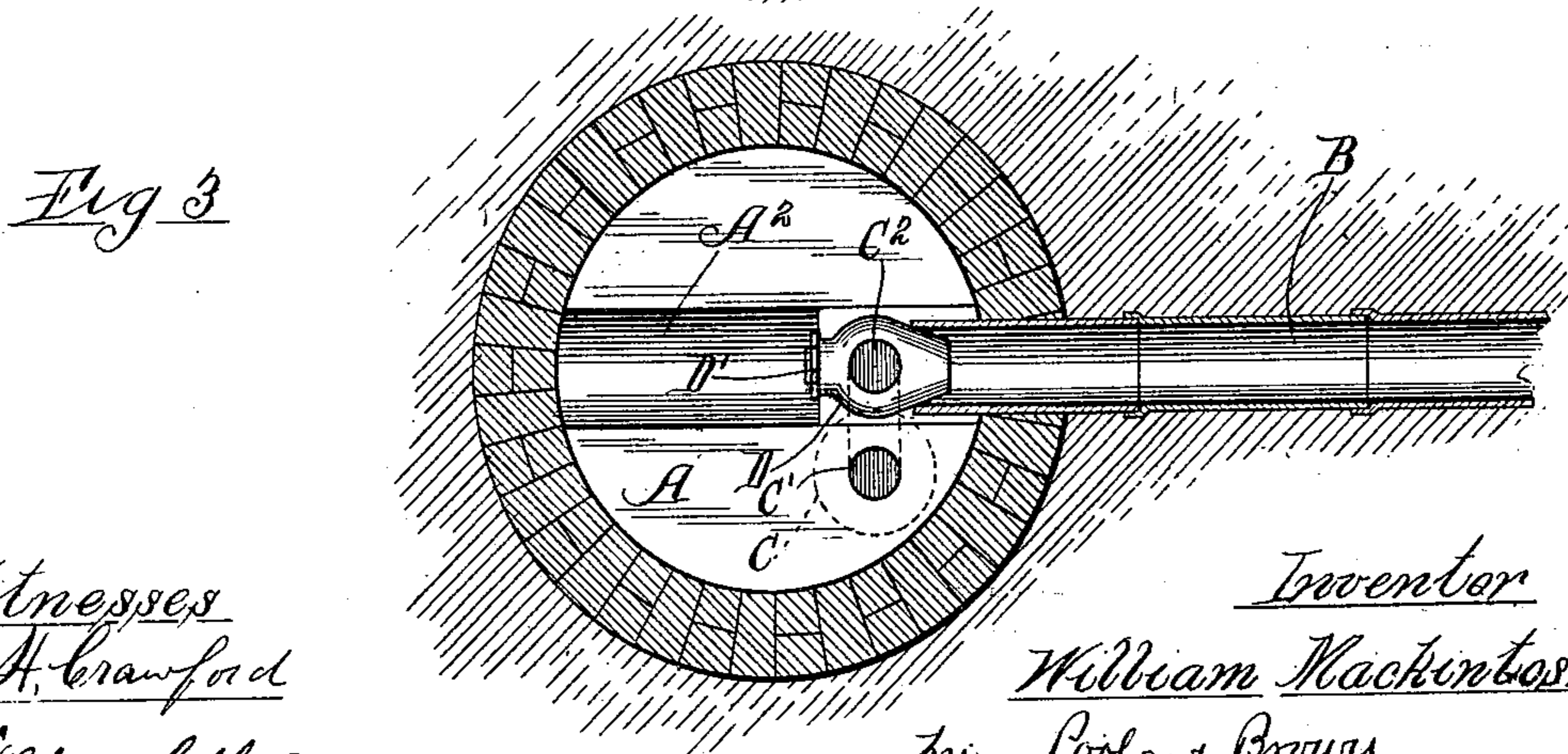
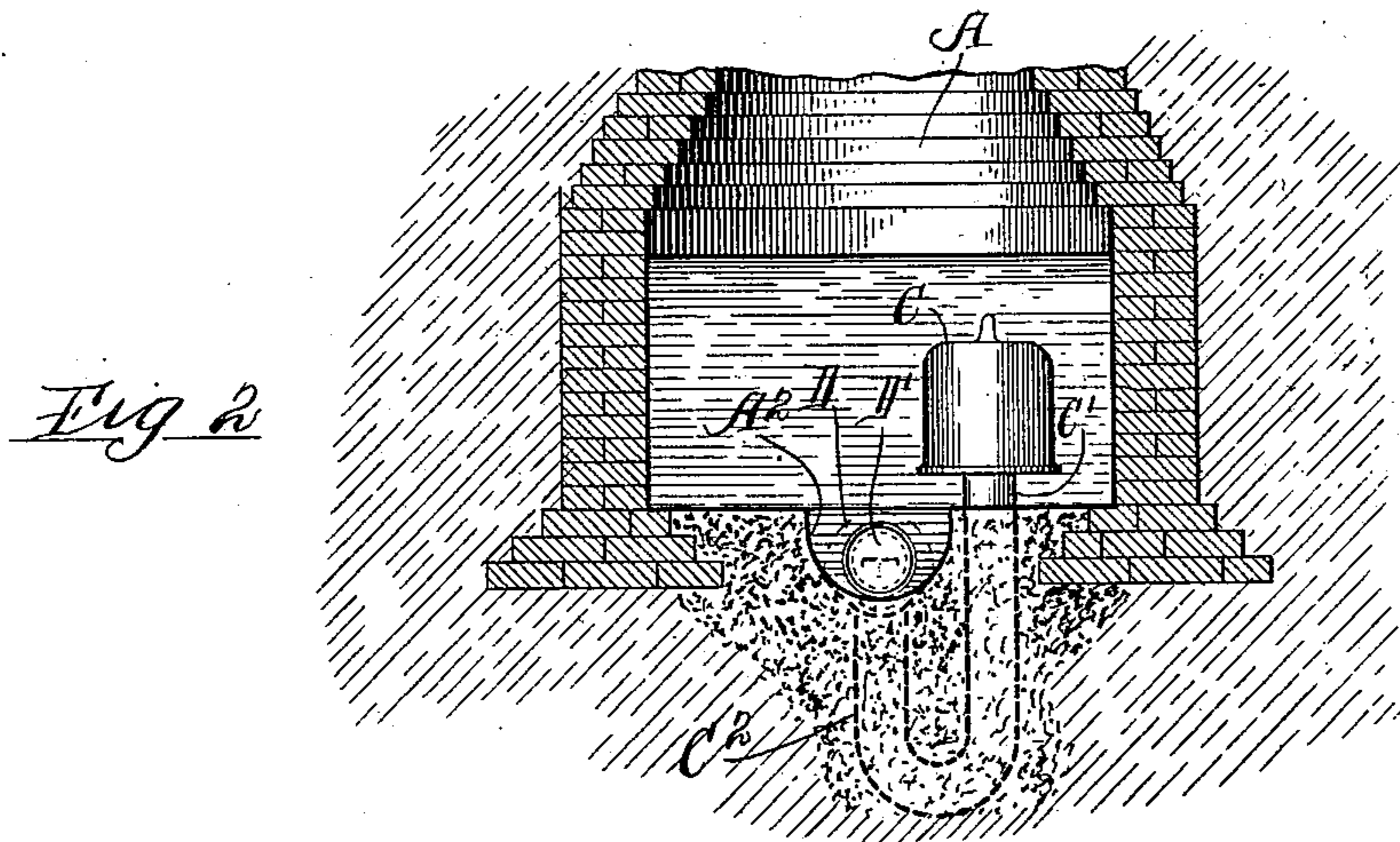
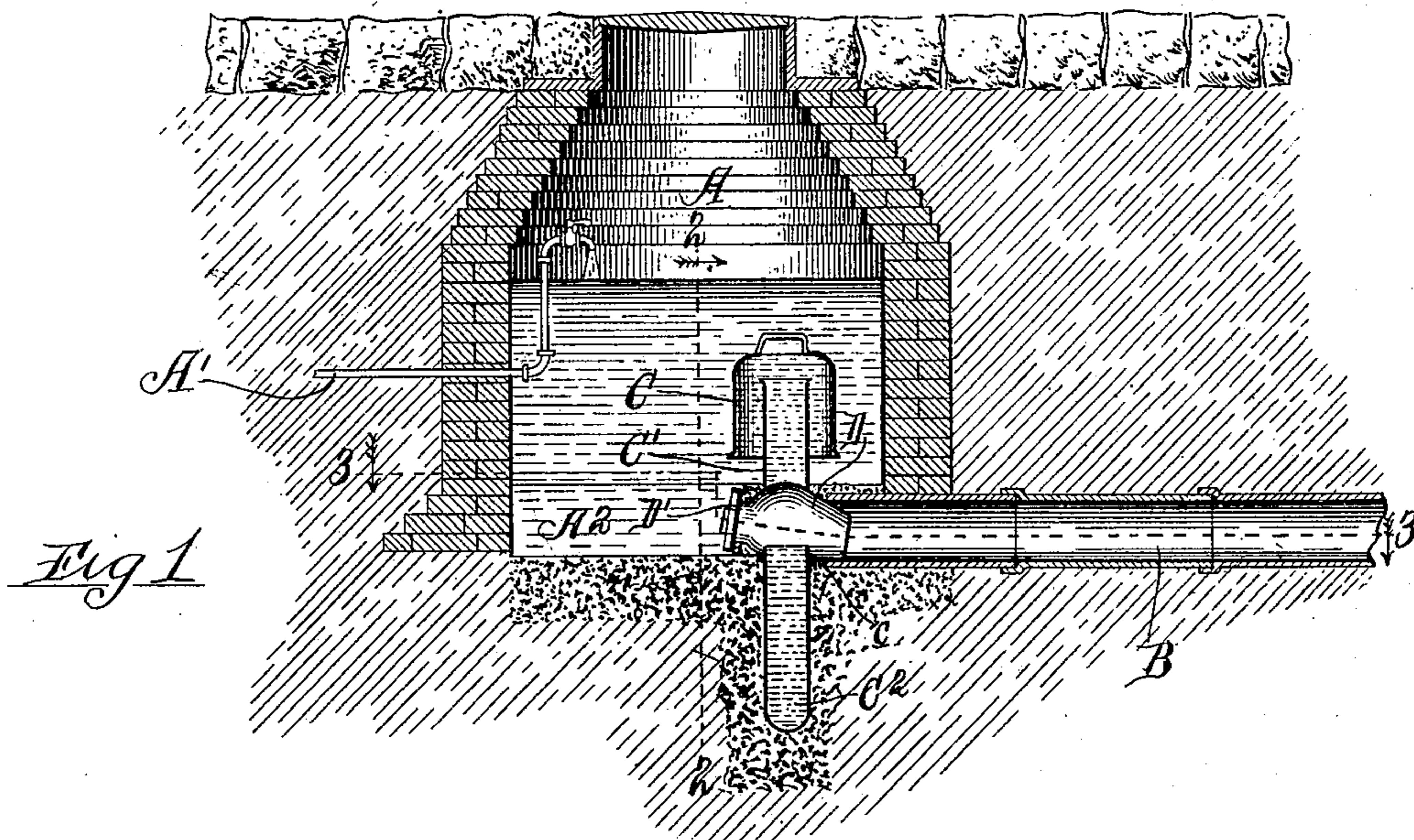
No. 627,778.

Patented June 27, 1899.

W. MACKINTOSH.
FLUSH TANK.

(Application filed Nov. 2, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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FLUSH-TANK.

SPECIFICATION forming part of Letters Patent No. 627,778, dated June 27, 1899.

Application filed November 2, 1898. Serial No. 695,263. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MACKINTOSH, of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Flush-Tanks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in flush-tanks which are adapted to be used in connection with sewer systems and provided with a siphon for the purpose of intermittently discharging into the sewer a quantity of water to clean the same.

The invention relates more specifically to a construction and arrangement in devices of this character which is designed to permit the section of the sewer between the flush-tank and the next manhole to be readily inspected throughout the length of the same and, if necessary, to be cleansed of any substance lodged therein.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a central vertical section of a flush-tank made in accordance with my invention. Fig. 2 is a section taken on line 2 2 of Fig. 1. Fig. 3 is a section taken on line 3 3 of Fig. 1.

In said drawings, A designates the reservoir or tank proper, A' a feed-pipe leading from any suitable source of water-supply, through the medium of which said tank is filled, and B is one end of a line of sewer which opens into the bottom of said tank at one side thereof.

C designates the intaking-limb of the siphon, and C' the discharge-limb. Said intaking-limb consists in this instance of a bell-shaped hood, which is supported in any suitable manner over the upper end of the discharge-limb. The discharge-limb C' is bent upwardly at its end remote from the receiving-limb to form a deep seal C². Said discharge-limb opens at its end remote from the receiving-limb C into the bottom of the tank

A and is in communication with the sewer B, so that when the siphon is brought into operation the water will be drawn out of the tank through said sewer. The connection between the discharge-limb of the siphon and the sewer consists in this instance of a short section of pipe D, into which the discharge-pipe opens and is arranged to discharge into the sewer. Said section will preferably be loosely mounted over the outer end of the discharge-limb, said section being provided in its under side with an opening, through which the outer end of the discharge-limb projects, and supported upon the discharge-limb by means of an annular flange c thereon. The purpose of loosely mounting the section D upon the discharge-limb is to enable the same to be rotated so as to be adjusted angularly thereon to provide for any inaccuracies of setting when the apparatus is being put in place. Said connecting-section is herein shown as of oblong or pear shape in plan, with its smaller end projecting into the sewer-pipe, and a water-tight connection is provided between said parts by cement or the like. Said connecting-pipe D is provided in the end thereof opposite the sewer-pipe B with an opening, which is normally closed by means of a removable cap D'. Said opening is provided for the purpose of giving an inspector a clear range of vision through said connecting-pipe and the sewer to the next manhole for the purpose of inspection and also to provide a direct opening from said flush-tank to the sewer for the purpose of inserting a cleaning device into the sewer to remove obstructions therefrom. Said cap D' may be secured in the open end of the connecting-pipe in any suitable manner permitting it to be readily removed. As herein shown, the inner end of said pipe is provided with an enlarged annular recess, within which the cap fits, and the cap will be secured therein by the use of cement or the like. In order to prevent the longer member of the discharge-limb from obstructing the view through the said connecting-pipe and the sewer, said siphon is arranged with the two members of said discharge-limb in a plane practically perpendicular to the central axis of the sewer-

pipe or with the longer member thereof at one side of the connecting-pipe D. With this arrangement the intaking-limb of the siphon will be located at one side of the tank. The angular position of the siphon to the sewer-pipe B need not be exactly as herein shown, it being only necessary that the inner member of the discharge-limb be swung laterally away from its usual position within the tank, so as to be out of line with the opening in said connecting-section D, and therefore will not obstruct the view thereof through said section.

Preferably the tank will be provided in the bottom thereof with a centrally-arranged trough-like depression extending across the same, which is adapted to receive the end of the sewer-pipe and connecting-section D. The provision of this depression enables the siphon to be located in the tank, with the lower end of the receiving-limb closely adjacent to the bottom of the tank, so that the tank may be as nearly drained as in the ordinary construction, notwithstanding the fact that the discharge-limb of the siphon projects into the tank. The depression will preferably be of such size as to entirely receive the sewer-pipe B and the connecting-section D.

In the operation of the siphon the tank will be emptied to the level of the lower end of the intaking-arm of said siphon, and when it is desired to inspect the section of sewer beyond the flush-tank and between the same and the next manhole the supply-pipe A' will be cut off from the tank and the cap D' removed from the connecting-section, and the water remaining in the tank will be discharged through said connecting-section and sewer B. The inspector will then have a clear view through the connecting-section and the portion of the sewer between the flush-tank and the next manhole (or lamp hole or passage, in case the sewer be provided with the same) and will have sufficient room to insert a cleaning apparatus into the sewer to remove any obstructions therefrom.

Heretofore means for inspecting or cleaning a sewer in its part adjacent to the flush-tank has been afforded by providing a manhole located near the flush-tank, by means of which access may be had to the end of the sewer nearest the flush-tank and that part of the sewer leading from the flush-tank can be both inspected and cleaned. Such manhole permits the inspection and cleaning of the part of the sewer between the flush-tank and the manhole located at some distance therefrom or between the flush-tank and the main or receiving sewer into which the pipe from the flush-tank discharges. In other cases a lamp hole or passage has been provided by means of a vertical pipe, which is tapped into the sewer adjacent to the flush-tank and extends upwardly to the surface of the ground. In the use of such lamp-hole a light is lowered through the pipe into the sewer, so that the same may be inspected

from the next adjacent manhole or from a main sewer, as the case may be. When a manhole is made near the flush-tank, it enables the part of the sewer leading from the tank to be both inspected and cleaned, and when a lamp-hole only is employed it permits inspection of the sewer from the nearest manhole; but cleaning of the sewer can only be effected by discontinuing the parts of the same at or near the flush-tank. In the absence of such manhole or lamp-hole adjacent to the flush-tank in sewer systems provided with flushing apparatus of the general character described it has been practically impossible to satisfactorily inspect the upper or "dead" end of the sewer or that portion between the nearest manhole and the flush-tank without the necessity of removing the concrete bottom of the tank, in which the end of the sewer-pipe and the connections between the same and the siphon are located, together with the adjacent section of the sewer-pipe, this operation obviously involving a very considerable amount of work and expense.

An important advantage gained by the use of the improvements hereinbefore described is the avoidance of the necessity for such a manhole or lamp-hole at a point near the flush-tank and the consequent saving of the cost of constructing such manhole or lamp-hole. In other words, my improvement provides at a small cost a means by which is saved the much larger expense of providing a lamp-hole or manhole at the flush-tank. Moreover, my improvement provides all the advantages gained by the use of a manhole, because allowing the cleaning as well as the inspection of the end of the sewer nearest the flush-tank, it being of course understood that the cheaper expedient of the lamp-hole provides for inspection only and does not afford means for readily cleaning the sewer.

It will be understood that my improvement may be employed in connection with other forms of flushing apparatus than that herein shown—as, for instance, the discharge-limb of the siphon may discharge directly into the sewer instead of a connecting-pipe, as shown. In this event the first section of the sewer-pipe will be provided with a removable cap and will be provided in its under side with an opening for the insertion of the discharge-limb of the siphon.

I claim as my invention—

1. The combination with a tank or reservoir, of a siphon and a discharge-pipe leading from the interior of said tank and connected with the discharge-limb of said siphon, said pipe being closed by means of a removable closure at its end into which the siphon discharges.

2. The combination with a tank or reservoir provided in its bottom with a trough-like depression, of a discharge-pipe leading from said tank and located in alinement with said

depression, and a siphon, the discharge-limb of which is connected with said pipe, said pipe being closed by means of a removable closure at its end into which the siphon dis-
5 charges.

3. The combination with a tank or reservoir, of a siphon, a discharge-pipe leading from the interior of said tank, and a removable section for connecting the discharge-
10 limb of the siphon with the discharge-pipe, said connecting-section being provided with a removable closure located opposite to or in alinement with the discharge-pipe.

4. The combination with a tank or reservoir, of a siphon, a discharge-pipe leading from the interior of said tank and a connect-
15 ing-section rotatively mounted on the outer end of the discharge-limb of the siphon and having a discharge-opening which is connect-
20 ed with said pipe, said connecting-section being provided with a removable closure form-

ing its side or wall opposite the discharge-opening therein.

5. The combination with a tank or reservoir, of a siphon and a discharge-pipe lead- 25
ing laterally from said tank and connected with the discharge-limb of said siphon, said pipe being closed by a removable closure which is located in alinement with the pipe
and the tank being provided with an unoc- 30
cupied space which is also in alinement with said pipe, affording means by which the pipe may be visually inspected from the interior of the tank when said closure is removed.

In testimony that I claim the foregoing as 35
my invention I affix my signature, in presence of two witnesses, this 27th day of October, A.
D. 1898.

WILLIAM MACKINTOSH.

Witnesses:

E. A. DUNHAM,
CHAS. S. FISHER.