

No. 629,578.

Patented July 25, 1899.

E. MAGINN.

MEANS FOR PURIFYING WATER.

(Application filed Apr. 6, 1899.)

(No Model.)

Fig. 1.

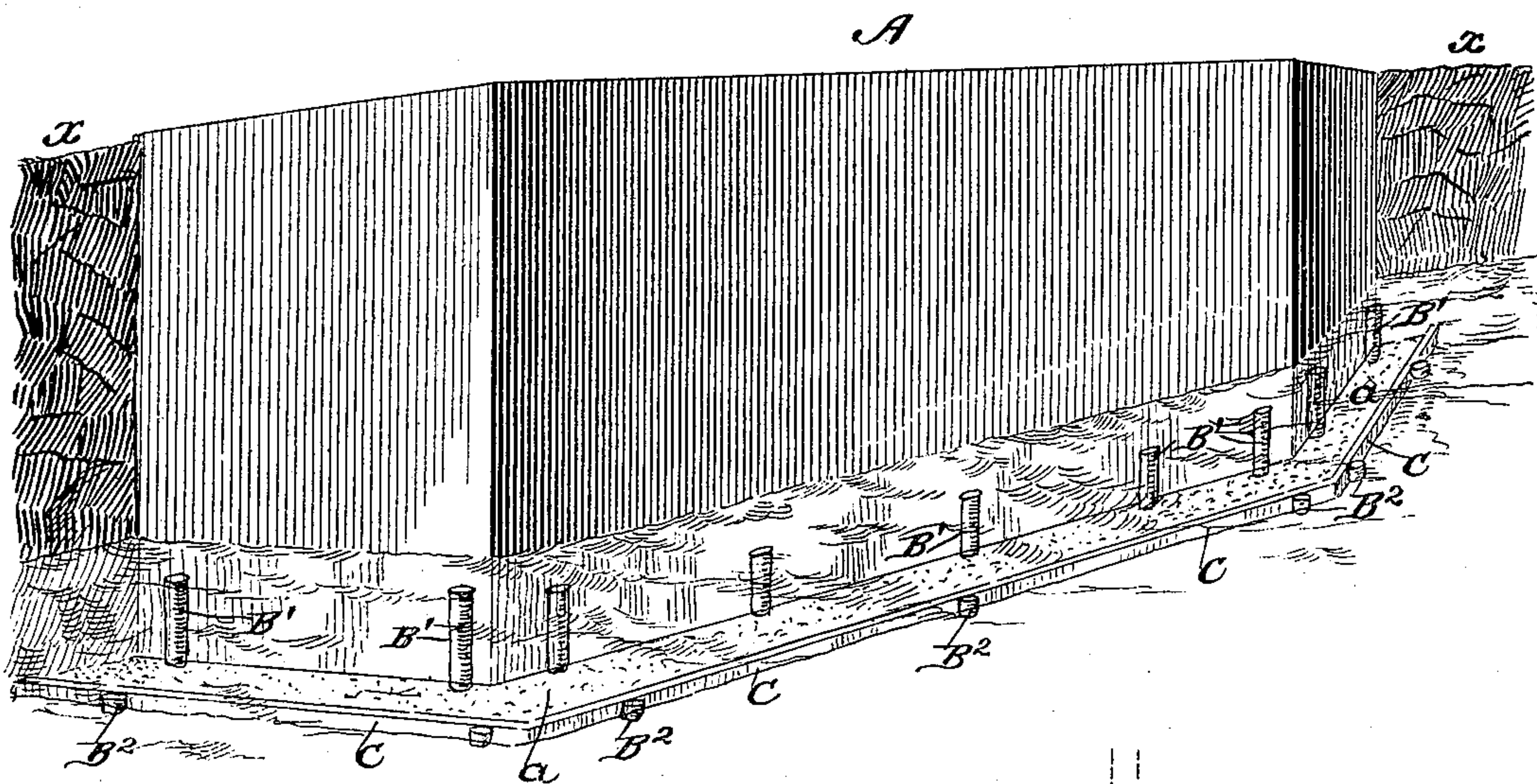


Fig. 2.

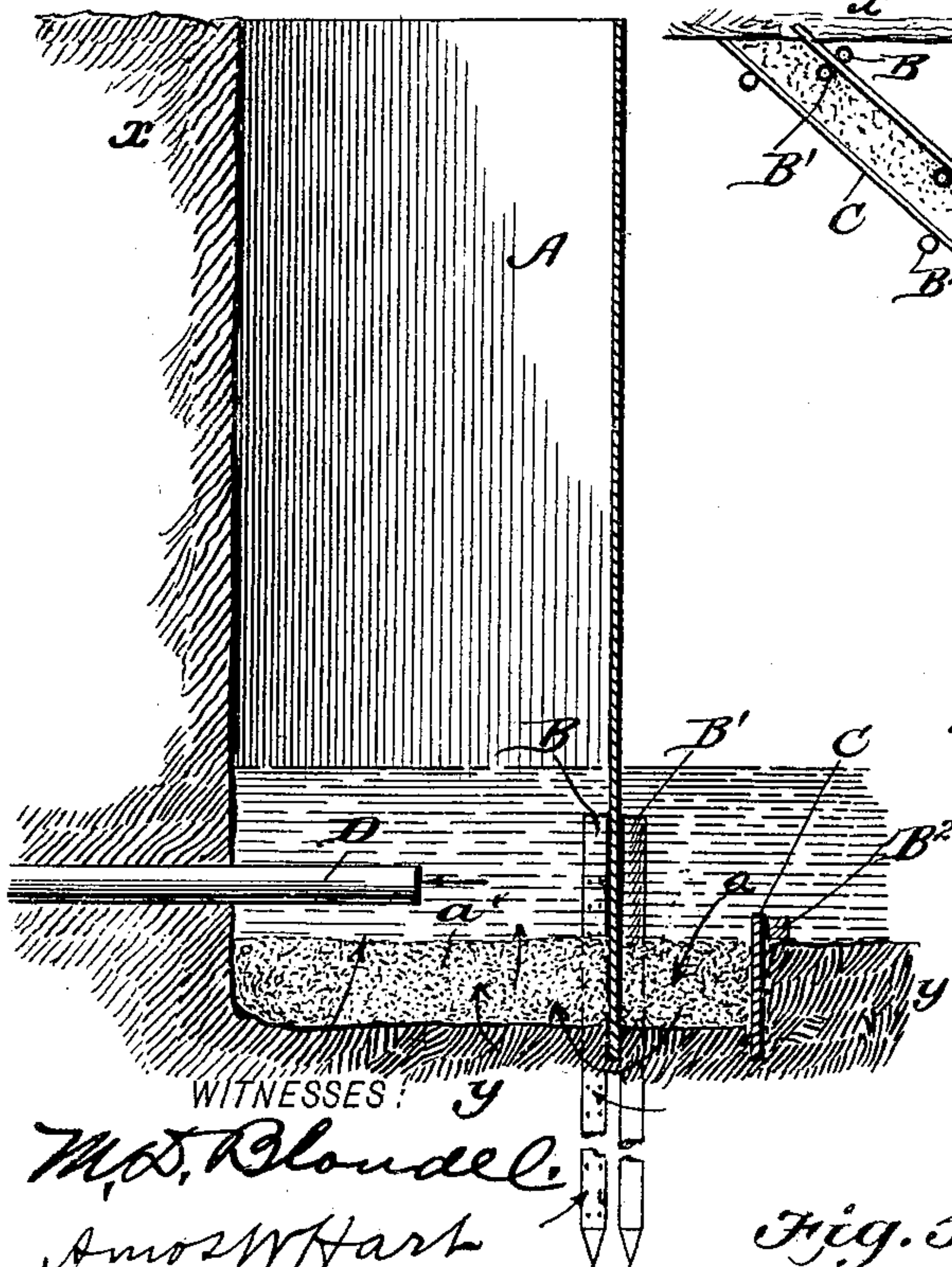


Fig. 3.

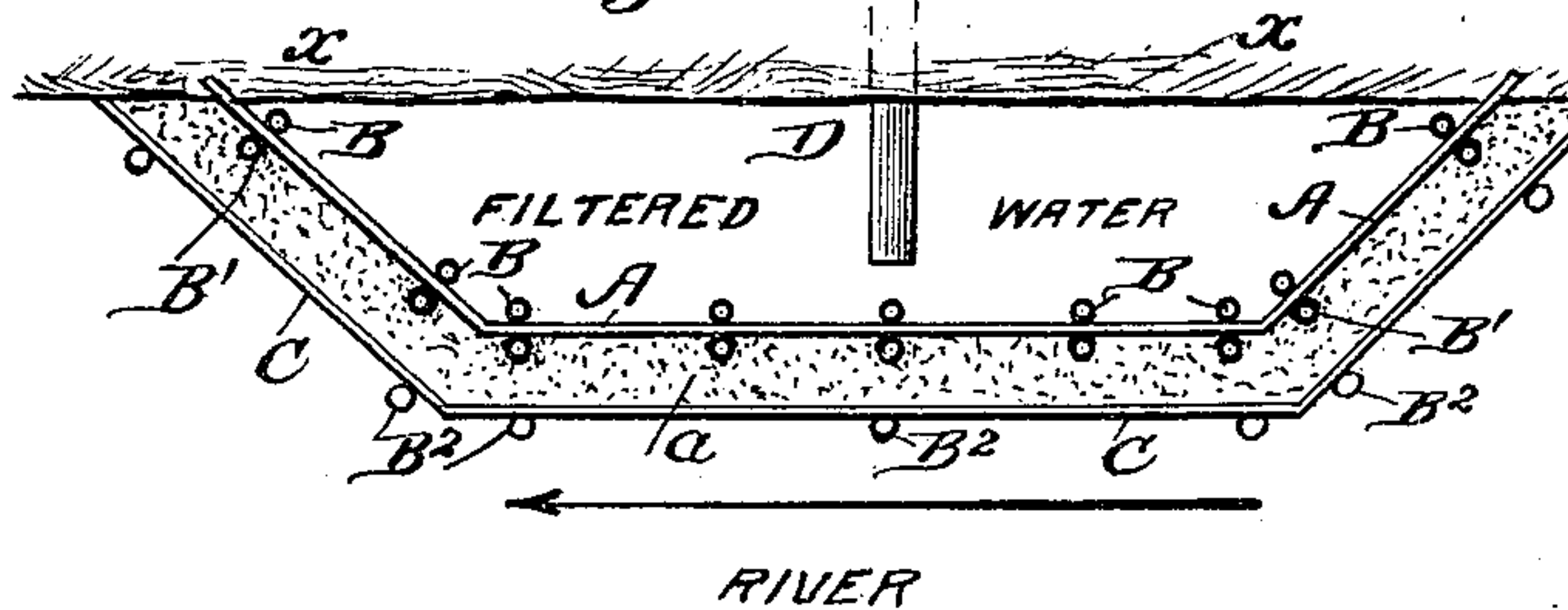
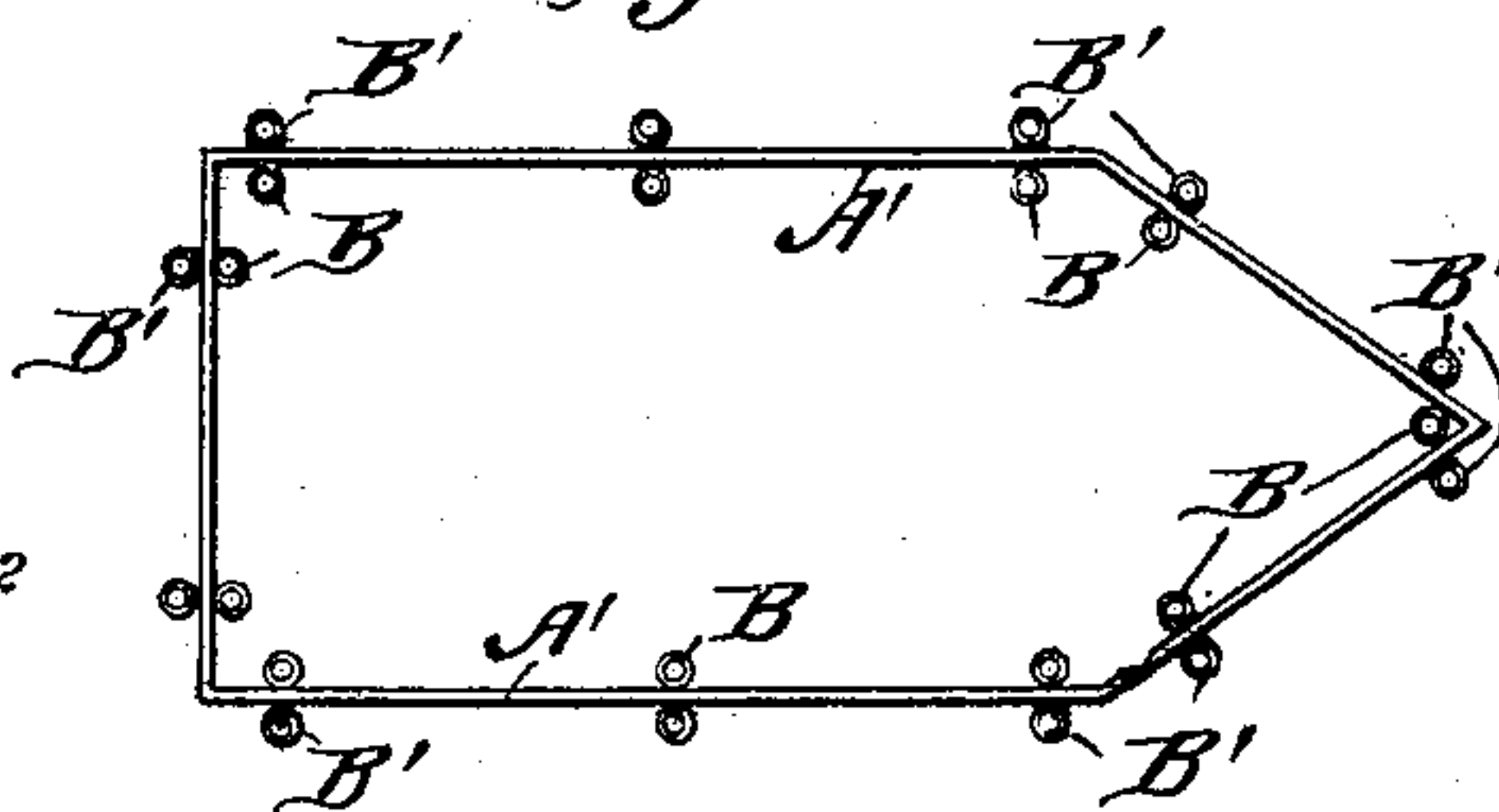


Fig. 4.



INVENTOR

Edward Maginn.

BY *Muntz*

ATTORNEYS.

Fig. 5.



UNITED STATES PATENT OFFICE.

EDWARD MAGINN, OF ALLEGHENY, PENNSYLVANIA.

MEANS FOR PURIFYING WATER.

SPECIFICATION forming part of Letters Patent No. 629,578, dated July 25, 1899.

Application filed April 6, 1899. Serial No. 711,988. (No model.)

To all whom it may concern:

Be it known that I, EDWARD MAGINN, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Means for Purifying Water, of which the following is a specification.

It is the object of my invention to purify water taken from rivers or large streams for use by towns and cities, as well as public and private establishments, and to do this at small cost as compared with the systems generally employed or proposed for adoption for that purpose. One of the most prominent of such systems is that which includes the use of receiving and subsiding reservoirs, and another provides for a filtration plant, which generally requires a pumping-station. In the first case no filtration is made and purification depends wholly upon subsidence by gravity, and both systems require enormous outlay for installation and involve considerable expense for subsequent maintenance. I effect purification by means of a tank or cistern which is set in the stream used as a source of supply, and I so arrange it that the natural bed of said stream serves as the filtering medium, thereby dispensing with the necessity of purchasing and occupying any land or employing pumps or other parts necessary to the other expensive systems.

In the accompanying drawings, Figure 1 is a perspective view of a water tank or cistern constructed and arranged alongside a river-bank according to my system. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a plan view of the same. Fig. 4 is a plan view of a tank designed to be arranged in the bed of a river away from the bank. Fig. 5 is a plan view, part being in section, of one of the tubular perforated piles.

The body of the tank or cistern A may be constructed of various materials, such as metal, wood, stone, or cement. In this instance the vertical wall of the tank is represented as formed of sheet metal, steel being preferred. As shown in Figs. 1, 2, and 3, the tank is arranged close to the river-bank *x*, which forms one side of the same, and it has two obtuse angles, its ends being inclined toward and joining the bank. This form offers small resistance to the river-current. The wall of the

tank A enters the river-bed *y* to a depth depending in part upon the nature of the bed; but it must be sufficient to avoid washing away of the earth around it, so as to allow entrance of water without percolating a due depth of soil. Posts or piles B and B' are driven close to the inner and outer sides of the tank-wall, as shown in Figs. 2 and 3, for the obvious purpose of insuring stability. These piles are tubular and pointed and formed of steel or iron. The inner ones, B, are perforated to allow admission of water, so that they operate like so many driven wells. They are preferably made twenty-five or more feet in length, so that they may be driven deeply into the river-bed. Exterior to the base of the tank A, I arrange a low wall C, which is separated from the tank by a narrow space that is filled with sand *a*, and piles B' are driven close to said wall C, as shown. Sand *a'* may also be placed in the tank proper to a short depth in case the soil of the river-bed is of such nature as to render its use desirable as a filtering medium.

It is apparent that the water of the river will percolate the bed around and beneath the tank A and enter the same at the bottom and through the hollow piles B, as shown by arrows in Fig. 2, and that its level within the tank will be the same as that of the stream outside. Water also percolates through the supplemental filter-bed *a* and is thus twice filtered before entering the tank. The wall C therefore subserves two functions in that it reinforces and protects the base of the tank or cistern A and also provides a separate filtering medium. The mud or other foreign matter filtered out and deposited on the bed surrounding the tank or cistern will be gradually washed away by the current, so that obstruction or danger from that source is avoided. The turbid or impure water of the stream which thus enters the tank A, filtered and purified, is drawn off from it by means of a pipe D, which is located near the bottom, or at least below low-water mark. It is apparent that the height of the tank must be such as to exceed high-water mark, or else its top must be closed to ingress of water.

In many cases a tank A', Fig. 4, may be located away from the bank or near the mid-

dle of the stream, and in such case I propose to construct it with its upstream end presenting an acute angle. Piles are also driven to protect said tank, as in the case of the tank

5 A. The operation is the same as in the case first described. The construction of such a tank or cistern and its location in a river-bed and the utilization of the latter as a perpetual self-cleaning filtering medium obviously involve comparatively small first cost and no outlay for maintainance, while the operation is effective and reliable.

It is apparent the invention may be applied in a still body of water, such as a lake or pond, without requiring modification.

What I claim is—

1. The tank or cistern having a vertical wall, and set in the bed of a stream or other body of water, a series of piles driven vertically on both sides of said wall in contact therewith, and an eduction-pipe connected with the cistern at a point below the water-surface, as shown and described.

2. The combination with a tank or cistern having an open bottom and set in a river or other water-bed, of an exterior vertical wall also set in the water-bed, adjacent to but

separated from the tank, substantially as shown and described.

3. The improved filter comprising a tank or cistern having an open bottom and set in a water-bed, a short adjacent wall set vertically in the same water-bed, a layer of filtering material placed in the tank, and in the space between it and the low adjacent wall as shown and described.

4. The combination with the tank or cistern wall set vertically as shown, of tubular piles which are driven alongside the same, and perforated, to adapt them to serve as water-conductors, as specified.

5. The combination with the bed and bank of a body of water, of a tank or cistern, which is open at the bottom and placed adjacent to said bank, with its ends entering the bank as shown, so that the latter serves as one side of such tank or cistern, and a water-eduction pipe arranged below low-water-level, as shown and described.

EDWARD MAGINN.

Witnesses:

JOHN M. PRESCOTT, Jr.,
JAMES W. PRESCOTT.