A. J. REED.

APPARATUS FOR PURIFYING WATER.

APPLICATION FILED JUNE 28, 1921.

1,397,452. Patented Nov. 15, 1921.

FIG. 1.

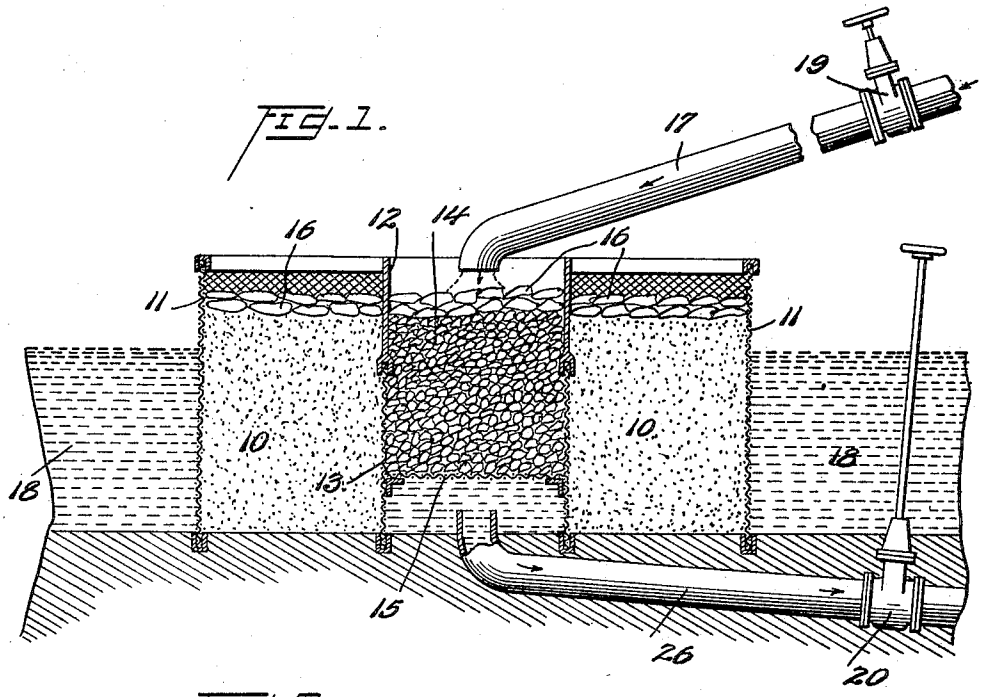
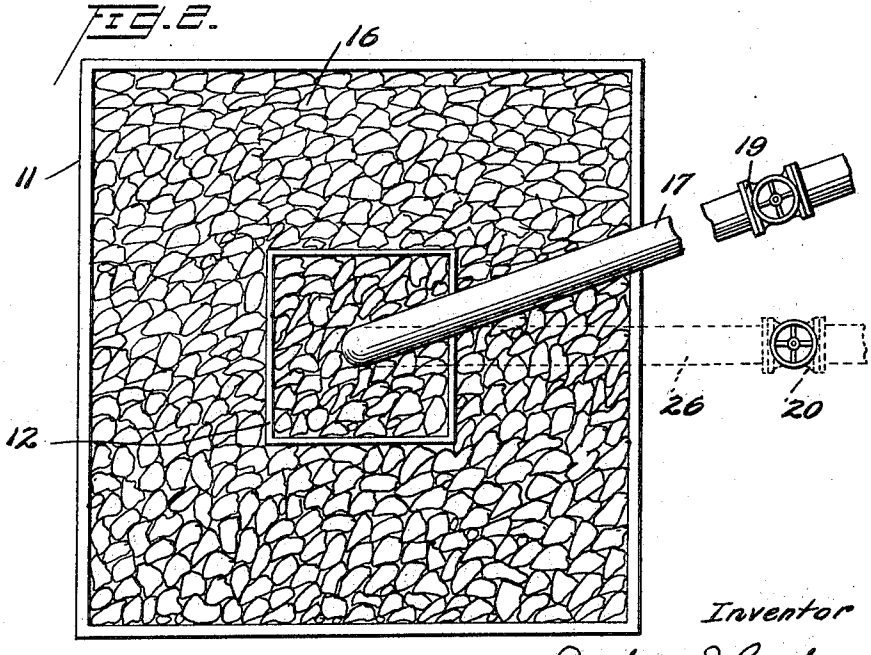


FIG. 2.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PURIFYING WATER.

1,397,452. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed June 28, 1921. Serial No. 481,024.

To all whom it may concern:

Be it known that I, ANDREW J. REED, a citizen of the United States, and residing at Wilkes-Barre, county of Luzerne, State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Purifying Water, of which the following is a specification.

The present invention relates to apparatus for purifying water, the objects being to accomplish the result by a cheap, easily constructed arrangement. To this end the apparatus preferably comprises a mass of material such as coarse ashes disposed in a reservoir and means for delivering the water to be purified within the mass of ashes at a point below its upper surface and centrally disposed. The water thus discharged into the ashes percolates through the same and has any matter in suspension removed.

The objects and novel features of the invention will be apparent from the description taken in connection with the drawings in which:

Figure 1 is a sectional elevation through an apparatus constructed in accordance with the present invention; and

Fig. 2 is a top plan view of the apparatus.

Referring to the drawings, as shown, the main filtering means consists of a bed of ashes, preferably coarse, clean anthracite ashes. In preparing the ashes for this use they are screened so that the finer portions are separated out. It is found that a screen having one-quarter inch meshes gives ashes of a satisfactory size. As shown, this mass of ashes 10 is surrounded by a wall 11 consisting of a screen of sufficient strength so that the ashes will be held from washing away. Spaced from the outer wall 11 and within the same is an inner wall which comprises the imperforate upper portion 12 and the perforated lower portion 13. The imperforate portion of the wall extends downward to a point considerably below the upper surface of the mass of ashes 10 so that water discharged into the space within the inner wall is caused to pass into the mass of ashes below its upper surface. The space within this inner wall may be filled with a coarse, hard material 14 such as crushed coke or stone. This material rests on a perforated bottom wall 15 and a drain pipe 26 has its inlet disposed in the space defined by the inner wall 13 and the bottom wall 15. In order to hold the ashes and the coarse material 14 compressed and to prevent washing away, a pressure is exerted on the top surfaces of the same. As shown this is accomplished by disposing some large stones or weights 16 on the upper surfaces of the ashes and coarse material.

In operation the water to be purified or cleaned is fed through the pipe 17 and discharged within the inner wall of the apparatus. As shown the outlet of the pipe 17 is just above the stones 16. The water thus discharged percolates down through the coarse material in this inner chamber and thence outward through the mass of ashes 10, accumulating in the reservoir 18. In its passage through these materials any matter in suspension will be separated out so that the water within the reservoir will be sufficiently clean to be used for drinking or cooking purposes, or in steam boilers, for example.

After the apparatus has been in use for sometime, the interstices in the mass of ashes become more or less filled up with the material separated out of the water. In order to save the trouble of replacing these ashes because of their clogged condition, the drain pipe 26 is provided, to clean out the ashes 10. In this operation the valve 19 controlling the supply of water to the apparatus is closed and the valve 20 in the drain pipe 26 is opened. Thereupon water from the reservoir 18 flows through the ash bed from the outside inward and is drained through the pipe 26 carrying away a considerable part of the material which has been separated out by the ashes.

It is to be understood that the invention is not limited to the specific details shown and described but includes modifications and changes which come within the scope of the appended claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:—

1. Apparatus of the character described including in combination, a mass of coarse anthracite ashes within a reservoir, the upper surface of said mass being normally at a higher elevation than the surface of the water in the reservoir, means to deliver water having matter in suspension into the central part of said mass below its surface, and a valve controlled drain pipe having its inlet disposed at the bottom of the mass, whereby water may be drained from the res-

ervoir through the mass into said pipe to clean the mass.

2. Apparatus of the class described including in combination, a vertical endless wall disposed in a reservoir, the upper portion being imperforate and the lower portion being foraminate, coarse crushed hard material within said wall, a mass of coarse ashes surrounding said wall to a height above the foraminate portion, means to discharge water having matter in suspension into the material within said wall, and a valve controlled drain pipe having its inlet disposed at the bottom of the material within the wall, whereby water may be drained from the reservoir through the ashes into said pipe to clean the ashes.

3. Apparatus of the character described including in combination, a vertical foraminate outer endless wall, an endless inner wall spaced from the outer wall having its upper part imperforate and its lower part foraminate, coarse anthracite ashes in the space between the walls to a height at least above the top of the foraminate part of the inner wall, coarse hard material within the inner wall, means to deliver dirty water within the inner wall, and a drain pipe having its inlet at the bottom of the coarse material.

In testimony whereof I hereunto affix my signature.

ANDREW J. REED.