C. Ballard,

Water Filter,

No. 19,335, Patented Feb. 16, 1858.

Fig. 3

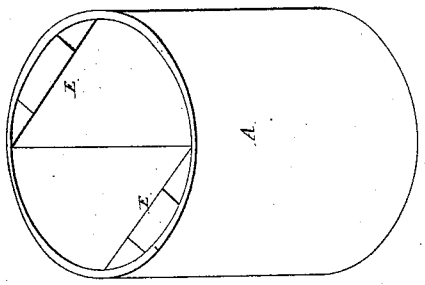


Fig. 6.

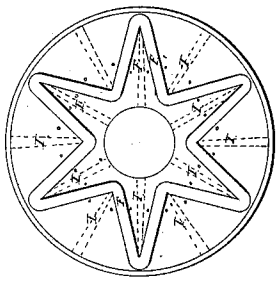


Fig. 2.

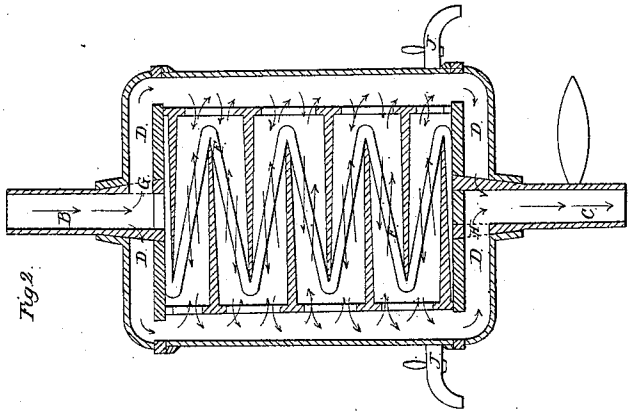


Fig. 5.

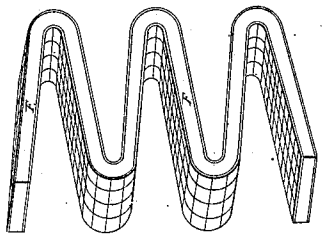


Fig. 1

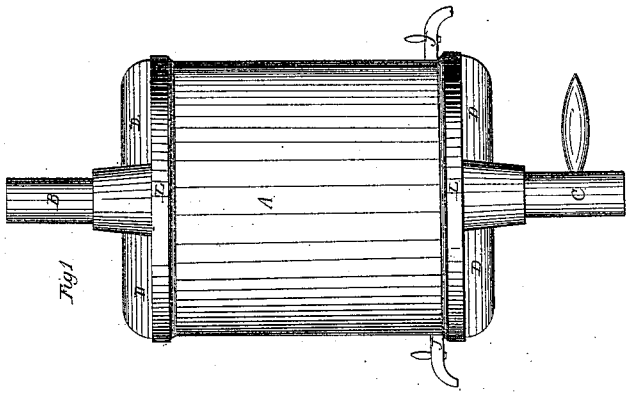
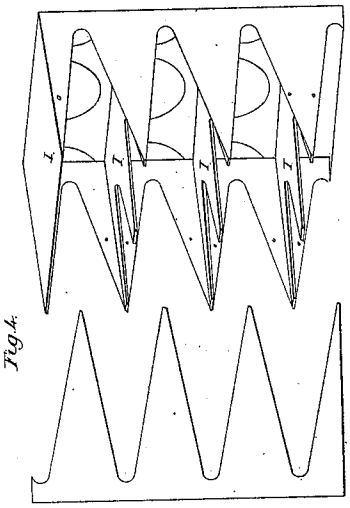


Fig. 4.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES BALLARD, OF WORCESTER, MASSACHUSETTS.

FILTERING APPARATUS.

Specification of Letters Patent No. 19,335, dated February 16, 1858.

To all whom it may concern:

Be it known that I, CHARLES BALLARD, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Instruments for Filtering Water or other Fluids; and I hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, due reference being had to the accompanying drawings by the letters marked thereon, in which drawings—

Figure 1 represents the filter complete. Fig. 2 shows a section through the center of the filter from side to side in the direction of the passages D D; Fig. 3 the case with the top and inside removed; Fig. 4 the parts for holding the filtering medium, one in perspective to show the flange; Fig. 5 another way of holding the medium; Fig. 6 shows how the folds may be arranged around a center.

The same letters in the different figures denote the same parts.

To construct my improved filter make the case A of some metal or metallic alloy that will not easily corrode or it may be made of wood. To the ends of this case secure the heads L L by screws or bolts or the lower head may be cast in one piece with the case; these heads are furnished with passages D D from side to side, also with holes through their centers. These holes are made tapering, being largest on the inner side of the head, and have fitted to them the pipes B C having their inner ends closed, and openings made in one side to correspond with the ends of the passages D D in the heads.

The inside frame of the filter, that holds the filtering medium is made in two parts as seen in Fig. 4, which are put together shutting into each other with the felt or other medium between them, the horizontal flanges I I serving to keep the medium distended while the vertical flanges *o o o o* on their edges come so close together as to hold the material between them tight and keep it in place; a small portion of the medium is allowed to project beyond the flanges *o o* and when the frame is inserted in the case A this surplus edge presses against the sides E E of the case and serves as a packing to keep the water or fluid from passing from one side to the other except through the filtering medium, F, or we may use two pieces of wire netting, as seen in Fig. 5 stiff enough to hold the material between its folds and keep it in place, or as in Fig. 6 where the folds are arranged around a center the material being still held by the edge flanges *o o* and distended by the center ones I I. The two stop-cocks J J are inserted in the sides of the case A on the same sides as the passages in the heads, for the purpose of drawing off the dirty water when the filter is reversed for the purpose of washing it, so that when the filter is placed in the middle of a long line of pipe, we shall not be obliged to pass the dirt that comes from the filter in cleansing it, through the second division of the pipe, which would cause an unnecessary waste of water. These stop-cocks, when the filter is in the situation above mentioned, also serve to draw water from the filter, one of the cocks discharging the water filtered the other not filtered.

To operate the filter fasten the pipe B to the supply pipe leading from the reservoir or fountain, with the aperture G on one side, say to the right as in Fig. 2, and the filter being turned so that the passages D D range from right to left the water will have free entrance to the case and through the filtering medium F in the direction indicated by the black arrows, see Fig. 2, and when the pipe C is turned so that its opening H agrees with the left-hand passage in the lower head, the water is drawn through the medium in center of the filter but if the pipe C is turned half way around so that its aperture H agrees with the right-hand passage in the lower head the water will be drawn directly down the right hand side of the case and be discharged without filtering; to stop the water bring the passage in the pipe C directly in front or back. To cleanse the filtering medium, turn the whole filter half way around on the pipe B so as to reverse the passages D D and the water will flow through the case and medium in the direction shown by the red arrows, Fig. 2, and in this way will remove easily any dirt or sediment deposited on the medium. By turning the filter so that the passages D D range from front to back the water will be completely shut off from the inside of filter, and by removing the fastenings of the heads the inside portion of the filter may be removed for repairs or examination.

What I claim and desire to secure by Letters Patent is—

1. I claim increasing the extent of the surface of the filtering medium by folding, and supporting or holding the folds substantially as described.

2. I claim the combination of the pipes B and C and heads having passages as described with the case A when constructed and operating as herein set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

CHARLES BALLARD.

Witnesses:

CHARLES A. GODDARD,

HENRY P. BAKER.