

G. R. MOORE.

Arched-Drains.

No. 129,578.

Patented July 16, 1872.

Fig. 1.

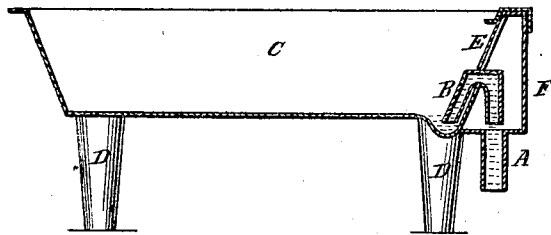


Fig. 2.

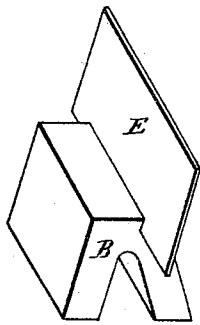
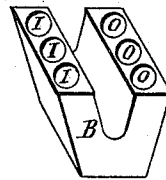


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ARCHED DRAINS.

Specification forming part of Letters Patent No. 129,578, dated July 16, 1872.

Specification describing certain Improvements in Drains, invented by GEO. RODNEY MOORE, of Lyons, in the county of Clinton and State of Iowa.

The first part of my invention relates to an arched passage for liquids to be drained from any sink or vessel in which hard substances may be found in mixture, whenever it may be desired to draw off the same separately from those substances, whether sediment or floating.

I have ascertained the principles upon which an arched passage may be constructed to be capable of holding liquid for a very considerable time in balance or self-poised by the air only. I do not use a true siphon, but the arms of the up-and-down portions or parts of the arched passage I make are of equal length for the purpose of so balancing the liquid with which they are filled that no tendency to flow will exist in either of them, and for want of unbalance neither side empties. Thus, when a vessel is drained to a level of the lower end of the outside arm of the arched passage equilibrium takes place; the arched passage remains filled and ready for immediate use again. Its automatic balancing constitutes a degree of constancy sufficient for all ordinary purposes, especially as it may be easily refilled by holding a temporary guard about the inside arm and furnishing a depth of liquid equal to the length of said arm. I have ascertained that the inlets and outlets of this arched passage should be about the diameter of a natural drop of the liquid used, and that air will not as readily rise up through water and other liquids in a tube of that size as it does through larger ones. I increase the capacity of the drain to any desired extent by increasing the number of the tubes, or, at least, their inlets and outlets. When this balanced siphonic tube or combination of tubes is used to connect a sink with a drain-pipe, care should be taken that no direct touch or interference of the two is allowed, unless air is introduced within, for air is the cut-off, and its introduction just at this point distinguishes my arched passage from the true siphon and gives it this useful function of self-equilibrium, which the ordinary siphon does not possess.

In an inverted arch, which is the usual form, not only is clogging by deposits an evil, but the force required to overcome the inertia of the water greatly impedes the efficiency of the apparatus.

An expansion of the drain-pipe or head, as shown in the accompanying drawing, may hold sufficient air for a cut-off of the stream, and then the whole may be made air-tight around the outside arm of the passage; and this brings me to the second part of my invention: In this condition my arched passage or drain is a trap of foul air from the ordinary drain-pipe.

Figure 1 is a vertical transverse section of a common sink with my invention applied in one mode. A is a drain-pipe; B, my arched drain or passage for liquids. C is a common sink; D, legs; E, an iron plate to close the opening from the sink to the drain-pipe. F is an air-chamber.

Fig. 2 shows B E in perspective. Fig. 3 is a perspective view from the lower side of Fig. 2. I I I are inlets, and O O O outlets of the arched drain or passage from the sink to the regular drain.

I claim as my invention—

1. An arched drain in which liquid may be retained in equipoise when a flow is not required, substantially as and for the purpose herein set forth.
2. The said drain, in combination with a common drain-pipe, as a practical trap for foul air, substantially as and for the purpose herein set forth.
3. The combination of two or more of said tubes or inlets and outlets to a passage for increasing the capacity of the same, substantially as and for the purpose herein set forth.
4. The air-chamber F, insulating said drain or drains, and connecting it or them with the ordinary drain-pipe, substantially as and for the purpose set forth.
5. In combination with said drain, the plate E, closing the opening from the sink to the drain-pipe, substantially as and for the purpose herein set forth.

GEO. R. MOORE.

Witnesses:

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