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M. B. LUKENS.
FILTERING APPARATUS.

APPLICATION FILED JULY 7, 1906. RENEWED MAY 16, 1907.

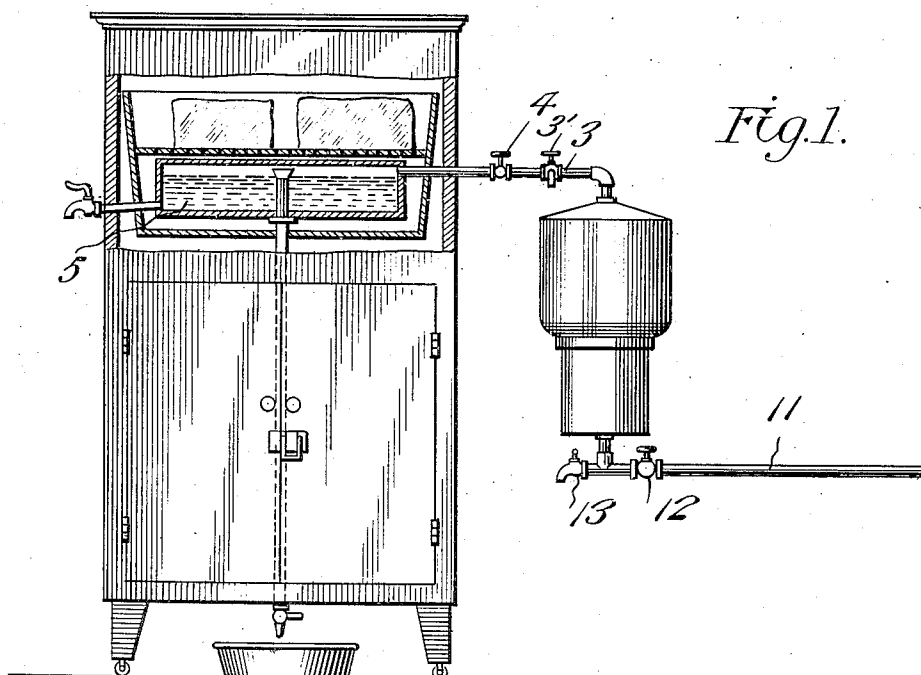


Fig. 1.

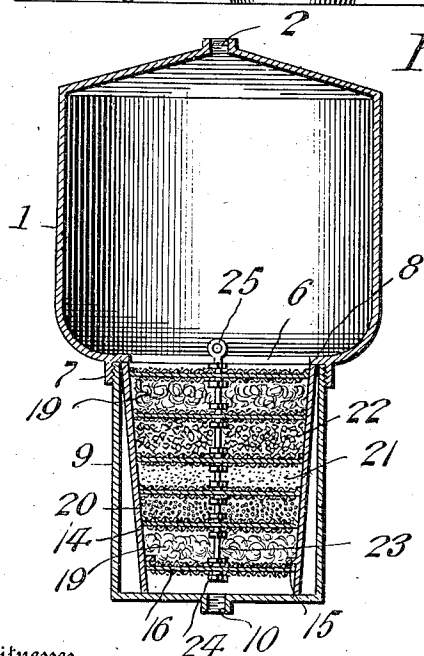


Fig. 2.

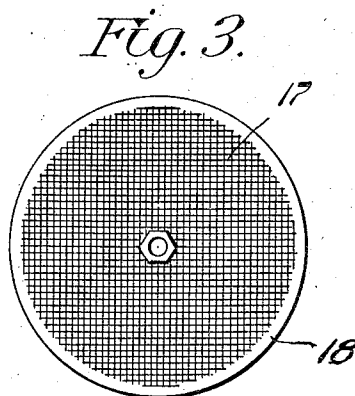


Fig. 3.

Witnesses

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FILTERING APPARATUS.

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To all whom it may concern:

Be it known that I, MERRIKEN B. LUKENS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Filtering Apparatus, of which the following is a specification.

This invention relates to improvements in filtering apparatus, and particularly to apparatus of that type designed to be interposed in the service pipe for the purpose of purifying the water as it enters a house.

One of the objects of the invention is to provide a filtering apparatus which may be employed for filtering the water passing to a refrigerator or other point where it is to be drawn off for use, and which is simple of construction and composed of comparatively few parts which can be readily disassociated when it is necessary to repair or cleanse the same.

A further object is to provide an apparatus which may be produced at a comparatively low cost and easily and conveniently interposed in any house service pipe for use.

In the accompanying drawings,—Figure 1 is a view in front elevation of the filtering apparatus, showing the same in position for operation. Fig. 2 is a vertical section through the apparatus detached from the service pipe. Fig. 3 is a plan view of one of the filtering partitions.

The device comprises a reservoir or storage vessel 1 provided at its upper end with a threaded opening 2 for connection with the delivery section 3 of a service pipe, which section 3 is provided with a valve 4 for controlling the flow of the filtered water under normal service pressure to the tank 5 of a refrigerator or other receptacle in which the filtered water is cooled and stored for use. The pipe section 3 may, however, be provided with a draw-off faucet 3' for the direct discharge of the filtered water therefrom.

The reservoir or storage vessel 1 may be of any preferred size and capacity and is formed with a contracted lower end provided with an inlet opening 6 and a depending internally threaded flange 7, the wall of the opening being extended inwardly beyond the flange to form a shoulder 8. Arranged below said storage vessel is a casing 9 open at its top and provided with a bottom portion having a threaded inlet 10 for the reception of the supply section 11 of the service pipe, which latter may be provided with a cut-off valve 12 and a faucet 13, through which latter water may be drawn directly from the pipe without its passage through the filter. By means of the valves 4 and 12 the sections of the supply pipe may be closed to cut off the flow of water when the filter is detached for cleaning or repairs.

The upper end of the casing 9 is externally threaded

for engagement with the flange 7 and contains an open-ended tapered or frusto-conical filtering chamber or vessel 14 which rests at its lower or reduced end against the bottom of the casing and at its upper end against the shoulder 8 and is thereby firmly clamped in position. Adjacent its lower end the chamber or shell 14 is provided with an interior annular flange or shoulder 15, and arranged within said shell in proper spaced relation is a series of disks or partitions 16, each comprising upper and lower sheets 17 of wire gauze and an interposed body 18 of felt or other suitable flexible absorbent material. Layers of suitable filtering material are disposed between the disks or partitions, which conform in diameter to the varying diameter of the portions of the shell 14 against which they bear, the edges of the felt body portions of the disks projecting beyond the gauze sheet so as to form packing strips adapted to bend upwardly and lie flatly in contact with the inner surface of the shell to prevent leakage of water between said shell and disks. In the present instance I have shown the filtering material as composed of upper and lower layers 19 of cotton, and intermediate layers 20, 21 and 22 of gravel, sand and charcoal, respectively.

A rod 23 extends centrally through openings in the disks or partitions and is provided above and below each partition with a nut 24, whereby the series of partitions are clamped thereto and held in proper relative positions. The upper end of the rod terminates in a handle 25, whereby the rod and partitions may be simultaneously withdrawn from the shell when it is desired to repair or cleanse the filter. Upon turning the rod to tighten up the nuts, which are held in such tightening movement of the rod against rotation in a retrograde direction by the meshes of the sheets 17, the flexible edge of the felt body and edges of the wire sheets of the lowermost partition will be drawn upwardly into contact with the flange 15, whereby the body of filtering material will be held from upward movement against the pressure of the water.

The water flowing inwardly from the pipe section 11 will pass upwardly through the body of filtering material, by which it will be relieved of its impurities, and then flow into the reservoir or storage chamber 1, from which it will pass to the tank 5 or may be directly drawn off for use. When it is necessary to cleanse, repair or renew the parts of the filtering body within the filtering chamber or casing, the casing 9 may be detached from the service pipe and storage vessel and the shell and body of filtering material therein readily removed.

It will be observed that the invention thus provides a simple construction of filtering apparatus which may be conveniently applied in a house service pipe for purifying the water passing therethrough and as con-

veniently removed for cleansing or repair, and that a simple and efficient construction of filtering medium for use in connection therewith is produced.

Having thus described the invention; what is claimed
5 as new, is:—

1. A filtering body comprising a plurality of filtering disks, each constructed of a frame having upper and lower reticulated heads, and an interposed flexible filtering sheet having its edge extending beyond the heads, filtering material between the filtering disks, a tie rod passing through
10 the disks, and nuts upon the rod bearing upon the heads of the disks to clamp the same in assembled relation, said nuts being held by the meshes of the disks against retrograde rotation.

15 2. A filtering apparatus comprising a storage vessel having an outlet at its upper end and an inlet at its lower end, and also provided with a shoulder adjacent said inlet and

a threaded flange pendent therefrom, a casing having a threaded engagement at its upper end with said flange and provided with a bottom inlet, a tapered shell within the casing clamped between the bottom of the same and the
20 shoulder on the storage vessel, a filtering body composed of a plurality of filtering disks and a filtering substance between the same, each disk being constructed of a frame having upper and lower reticulated heads and an interposed flexible filtering medium, the latter having project-
25 ing edges engaging the wall of the shell, a tie rod uniting the disks, and means for holding the body of filtering material from upward displacement.

In testimony whereof I affix my signature in presence of
30 two witnesses.

M. B. LUKENS.

Witnesses:

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