Dec. 2, 1930. J. R. McCONNELL ET AL 1,783,194

APPARATUS FOR CLEANING AIR FILTER CELLS

Filed Dec. 9, 1926

Fig. 1.

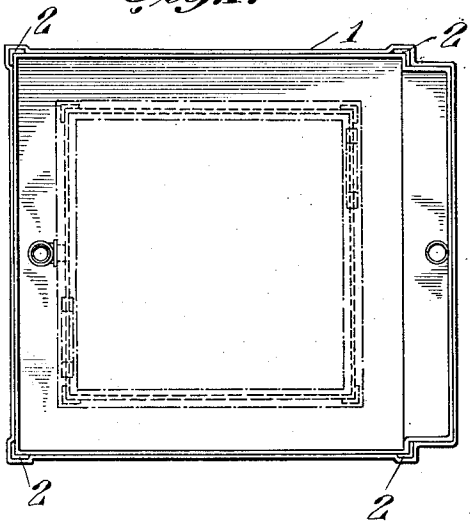


Fig. 2.

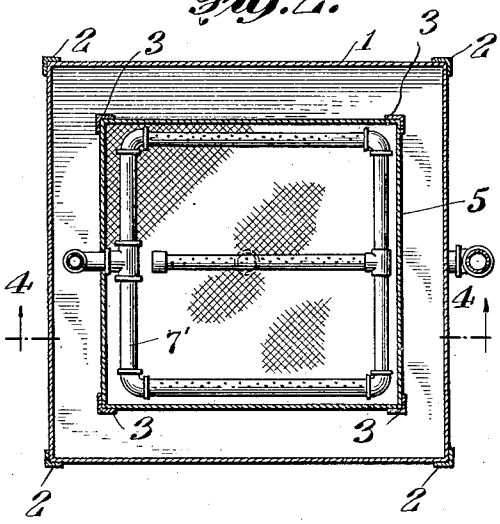


Fig. 3.

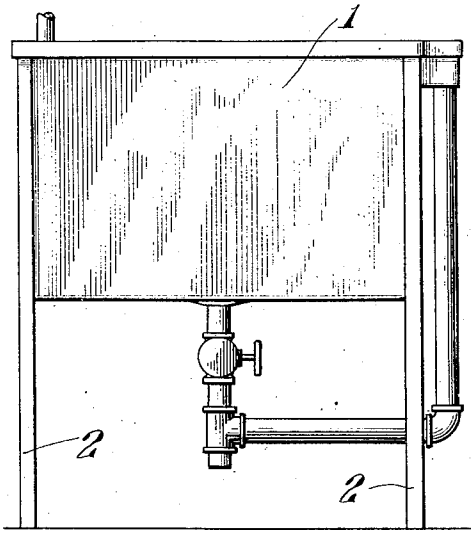
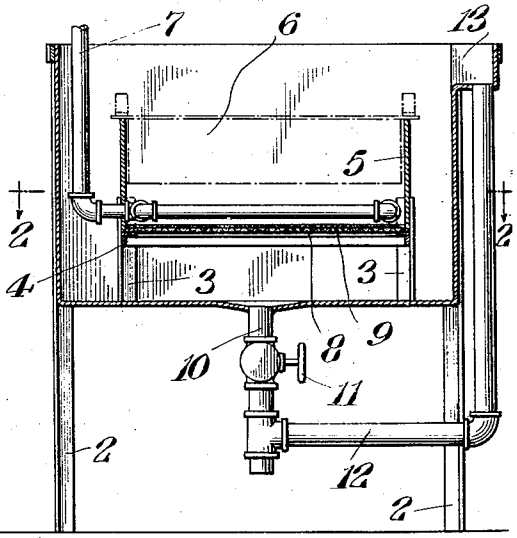


Fig. 4.



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UNITED STATES PATENT OFFICE

JOHN R. McCONNELL, OF ANCHORAGE, AND ALBERT S. LEWIS, JR., OF LOUISVILLE, KENTUCKY, ASSIGNORS, BY MESNE ASSIGNMENTS, TO AMERICAN AIR FILTER COMPANY, INC., OF LOUISVILLE, KENTUCKY, A CORPORATION OF DELAWARE

APPARATUS FOR CLEANING AIR-FILTER CELLS

Application filed December 9, 1926. Serial No. 153,583.

This invention relates to apparatus for cleaning or removing accumulations of dirt and other impurities from air filter cells.

It is an object of this invention to provide an apparatus in which air filter cells may be cleaned rapidly and thoroughly and without handling or manipulation by an attendant other than the mere insertion and removal of the filter into or from the apparatus. Other objects and advantages of the invention will appear hereinafter.

A preferred embodiment of the invention selected for purposes of illustration is shown in the accompanying drawings, in which,

Figure 1 is a top plan view.

Figure 2 is a horizontal section on the line 2—2 of Figure 4.

Figure 3 is a side elevation, and

Figure 4 is a vertical section on the line 4—4 of Figure 2.

Referring to the drawings, the apparatus comprises a tank 1 which may be conveniently supported on the four legs 2. Inside the tank 1 and preferably supported on the bottom thereof is a framework consisting of four legs 3 which are connected together by means of the horizontally disposed angle bars 4. Supported upon the framework thus formed is a frame or conduit 5 formed of sheet metal or other suitable material which may be of a size and shape to receive the body of a filter cell of standard size and shape but which may engage the flange of the cell to support the same in the manner illustrated in Figure 4, the filter cell 6 being indicated therein in dotted lines.

A steam pipe 7 is provided to connect the apparatus with a suitable supply of steam and the said pipe passes through one side of the frame or conduit 5 and is connected to a coil 7′ of any suitable size and shape, the coil being provided with perforations which project jets of steam toward the filter cell above.

Underneath the filter cell and the steam coil and supported on the angle bars 4 are a pair of foraminous sheets 8 and 9 which form a bottom for the cell supporting structure, foraminous sheets being provided in order that water may pass through from beneath to the filter cell above, while dirt and sediment are impeded. Preferably the sheet 8 may be a sheet of expanded metal while the sheet 9 may be of rather fine mesh wire screen. Forty-mesh wire screen may be used to advantage for this purpose.

Arranged at the bottom of the tank 1 is a drain pipe 10 having a valve 11 which may be opened to permit the tank to be emptied. Connected with the drain pipe 10 is an overflow drain pipe 12 which extends to the bottom of the trough 13 which is arranged at one side of the tank 1.

When the apparatus is used for cleaning filter cells, the tank 1 is filled with hot water up to the level of the bottom of the trough 13. The filter cell is then inserted in the manner illustrated in Figure 4 and, it will be observed, is completely immersed in the water. The steam is then turned on and the jets of steam which are projected upwardly toward the filter cell cause a current of steam and water to flow through the cell whereby the accumulated dirt and impurities are rapidly removed. As will be observed, the wire screen at the bottom of the supporting structure prevents dirt from rising with the water and passing again into the filter cell.

The filter medium in cells of the type disclosed is commonly coated with a viscous liquid such as oil for example, which, of course, is removed with the accumulated dirt and impurities. This oil, carrying with it the larger part of the accumulated dirt floats to the surface of the water in the tank and for the most part is removed through the overflow pipe 12 so that the water in the tank needs to be renewed only at infrequent intervals. While the apparatus is in use, the condensing steam, of course, provides a constant overflow of water through the pipe 12 which tends to carry off the floating scum of oil and dirt.

It will be understood that the invention may be variously modified and embodied within the scope of the subjoined claim.

We claim as our invention:

Cleaning apparatus for air filter units comprising a tank adapted to contain a liquid, a unit supporting receptacle therein having a

unit receiving opening and walls including a strainer, adapted to form an enclosure for separating strained liquid in the receptacle from unstrained liquid in the tank, and a steam projector in the receptacle effectively positioned between the strainer and said opening and having steam outlets directed toward said opening.

In testimony whereof, we have signed our names to this specification this sixth day of December, 1926.

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