

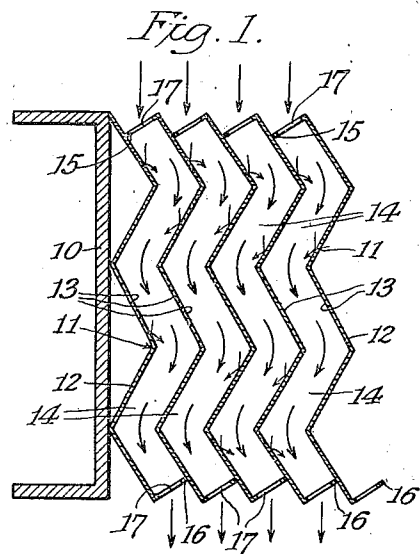
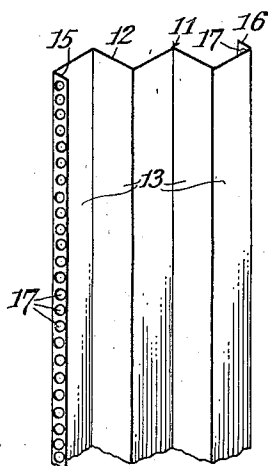
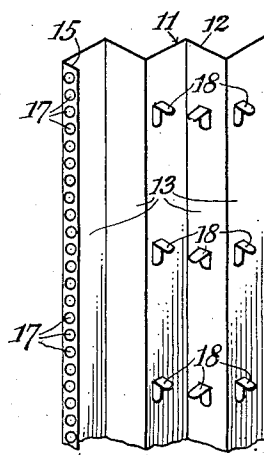
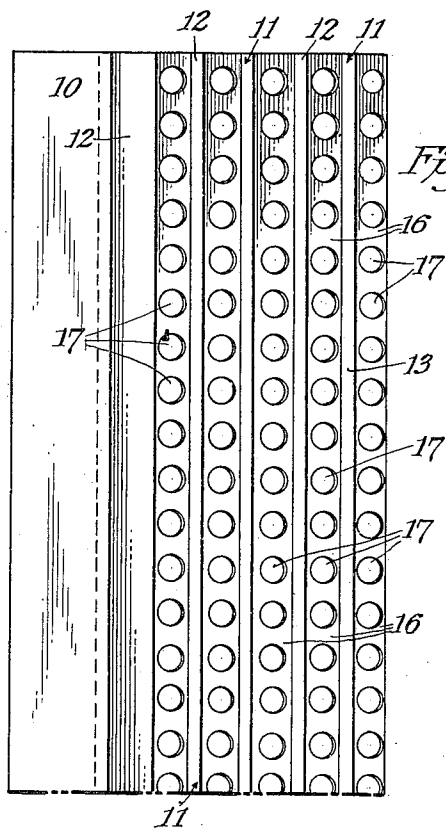
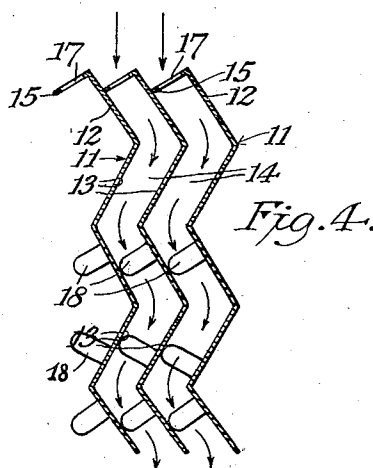
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W. L. RICHARDS ET AL

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PLATE FOR AIR FILTERS

Filed June 13, 1929



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UNITED STATES PATENT OFFICE

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PLATE FOR AIR FILTERS

Application filed June 13, 1929. Serial No. 370,489.

This invention relates to improved forms of eliminator plates used in air cleaners or filters.

In the present state of the art of removing dirt from air by means of air cleaners or air filters, the cleaning or filtering media employed frequently consists of a series of parallel eliminator plates uniformly spaced and in such position that horizontal zig-zag passages are provided in the direction of the air flow during the air cleaning operation, and straight vertical passages for the downward flow of a cleaning and charging fluid during the operation of cleaning said media. Frequently screens are provided in the front of said eliminator plates, to prevent the ingress of larger objects which might clog the media and sometimes in back of said media to protect the same from injury, or for other purposes.

The object of this invention is to provide eliminator plates having self-contained separators which will hold said plates approximately in parallel position with uniform spacing and also of such form that said separators will serve as a substitute for screens either in the front or the back of said filter media or both.

One feature of the invention is its flexibility. If screens are desired in front and in back of the media, they are provided by the use of perforated upturned or bent marginal flanges of the eliminator plates, preferably bent at right angles to front and back faces of said eliminator plates thus holding them uniformly separated, as well as acting as screens.

If a screen is desired for the front only said perforated separator flanges are used only at one side of the eliminator plates and the opposite side is spaced uniformly by the use of other means, as in the form herein shown by separators punched from the faces of the eliminator plates.

If no screen at all is desired the spacing is accomplished by the use of tab separators only, punched from the faces of said eliminator plates as desired.

In order that the invention may be clearly understood and readily carried into effect, the

same will now be described more fully, with reference to the accompanying drawings illustrating a preferred embodiment thereof, in which drawings:

Fig. 1 is a fragmentary view in transverse section showing a number of our improved filter units assembled in operative relation with a side rail or bar of an associated supporting frame, of any suitable construction.

Fig. 2 is a rear elevation of a portion of a filter made according to our invention.

Fig. 3 is a detail perspective of a portion of our improved sheet metal filter unit.

Fig. 4 is a top view of a number of improved filter units showing a slightly modified form of construction in which lugs or fingers are struck up from the walls of the units to provide spacing means and only one perforated flange is provided on the entering side.

Fig. 5 is a detail perspective of a portion of one of the filter units shown in Fig. 4 of the drawings.

In the drawings the numeral 10 designates a side rail or bar of a supporting frame for a number of filter units 11, here shown as consisting of sheet metal plates or webs 12 bent to form a plurality of faces or surfaces 13 which, when the said units are in assembled position, as in Figs. 1 and 2 of the drawings, are held in parallel spaced relation to provide indirect or tortuous air spaces or passages 14 extending the width of the filter structure.

The means for maintaining the bent plates in uniform spaced relation comprises preferably right angularly bent front and rear marginal flanges 15 and 16 preferably in which rows of holes or openings 17 are punched to provide passages for the ingress of air to be purified and for the egress of purified air.

In another form of our invention we may eliminate the rear spacing marginal flanges 16 and provide other means for spacing the rear portions of the filter units, said means comprising lugs or fingers 18 struck up from the plates or webs 12.

Of course it will be understood that the spacing apertured flanges 15 and 16 and the spacing lugs 18 may be made separate from

the plates 12 and welded or riveted thereto, if desired.

Changes and variations may be made in the construction of the parts of our invention, and we reserve our rights to any and all such changes as are within the spirit of the invention and the scope of the appended claims.

What we claim is:

10 1. An air filter embodying a frame and a series of plates having angularly bent flange portions to maintain them in spaced relation, said flange portions being perforated and said plates being bent longitudinally to provide indirect air passages.

15 2. An air filter embodying a frame and a series of longitudinally bent plates having angularly bent side flanges provided with a line of perforations, said flanges each bearing on a neighbor plate to form indirect air passages horizontally through the filter structure.

20 3. An air filter comprising a frame and a plurality of deformed plates each presenting a succession of air contacting surfaces in angular relation to each other and a flange integral therewith for spacing said plates, said flange having spaced openings and being arranged with its outer edge engaging a portion of an adjacent plate.

25 4. An air filter comprising a frame and a plurality of plates deformed longitudinally to present a succession of air contacting surfaces disposed in angular relation to each other and a spacing flange integral therewith and projecting from an edge thereof, said flange having openings for the passage of air and being arranged with its outer edge engaging a portion of an adjacent plate.

40 Signed at New York, in the county of Kings, and State of New York, this 6th day of June, 1929.

WILLIAM L. RICHARDS.
CHARLES J. NELSON.

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