

M. COMBEMALE.
 FILTERING ELEMENT FOR AIR PURIFIERS AND THE LIKE.
 APPLICATION FILED FEB. 9, 1912.

1,125,966.

Patented Jan. 26, 1915.

Fig. 1.

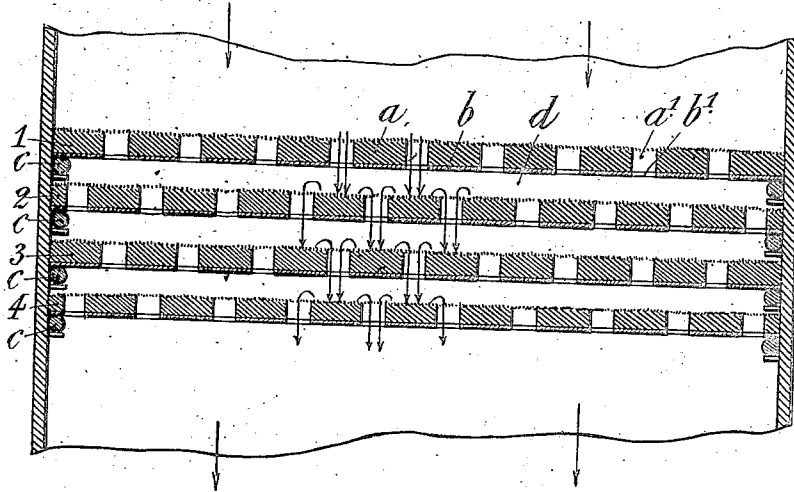
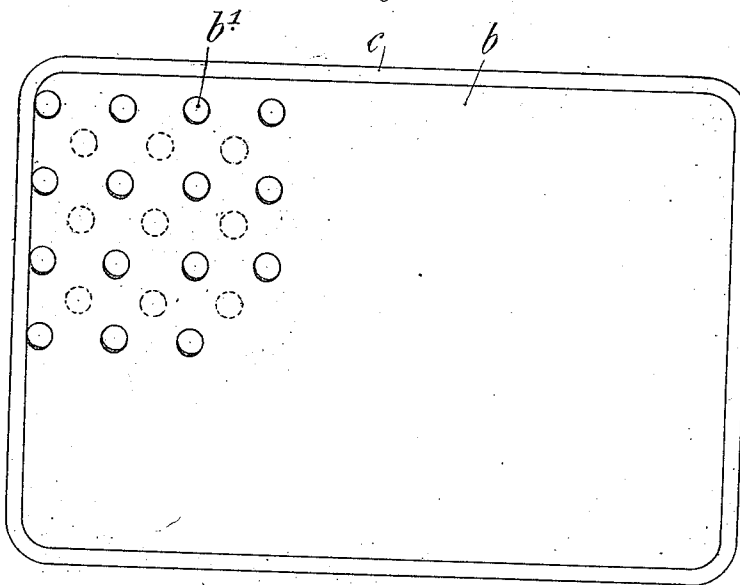


Fig. 2.



Witness:
 Charles H. Frank

Inventor:
 Marcel Combemale
 Attorney

UNITED STATES PATENT OFFICE.

MARCEL COMBEMALE, OF CLICHY, FRANCE.

FILTERING ELEMENT FOR AIR-PURIFIERS AND THE LIKE.

1,125,966.

Specification of Letters Patent. Patented Jan. 26, 1915.

Application filed February 9, 1912. Serial No. 676,659.

To all whom it may concern:

Be it known that I, MARCEL COMBEMALE, a citizen of the Republic of France, residing at 12 Rue Curton, Clichy, Seine, France, have invented Improvements in Filtering Elements for Air-Purifiers and the like, of which the following is a specification.

This invention relates to air purifiers and more particularly to dust arresters and separators.

According to the present invention, the dust collector comprises a number of thin perforated sheets of cotton wadding or the like fluffy material of very loose texture, suitably supported parallel to each other and close together, and in such manner that the holes in each of them are staggered with respect to the holes of the succeeding sheet. With this arrangement, the air while passing through the perforations of the first sheet is sub-divided into a plurality of separate jets, which impinge against the imperforate parts of the next succeeding sheet and so on throughout the series. The effect of this is to cushion the air jets and deflect them through the loose fibers of the wadding so as to entrap the dust particles by virtue of their own momentum, which causes them to embed themselves in the dust entrapping wadding, whereas the air itself is deflected so that it may pass on through the next series of holes.

In the preferred embodiment here disclosed, the perforated dust-entrapping baffles comprise layers or sheets of wadding or other suitable fibrous material each stuck or otherwise secured to a relatively rigid backing sheet, thus forming what may properly be termed a baffle, the facing of fibrous material and the backing sheet being formed with perforations that exactly coincide with each other. The complete or compound sheet or baffle so obtained is then stuck or otherwise secured to a rigid support constituted by a frame proper that is to say a frame the sides of which are not united by cross members, or if necessary the frame may be strengthened by a trellis work of large mesh.

The several baffles are so arranged that the perforations in each are staggered in relation to the perforations in adjacent baffles.

Figure 1 of the accompanying illustrative drawing shows in longitudinal section a portion of an air conduit fitted with baffle

elements constructed according to this invention. Fig. 2 is an underside view of one of the baffle elements.

Each element comprises a layer or sheet *a* of wadding or other appropriate fibrous or thready material stuck or otherwise conveniently attached to a backing sheet *b* which is preferably made of some material easily permeable by air such as tarlatan, linen or the like, but which may if necessary be rigid and impermeable by air such as a sheet of cardboard, sheet iron, etc.

The two sheets *a* and *b* are perforated with identical holes *a*¹, *b*¹, each of the holes *a*¹ in the sheet or layer *a* coinciding exactly with a hole *b*¹ in the backing sheet *b*. To insure the perfect alinement of the holes the perforations *a*¹ and *b*¹ are preferably produced simultaneously.

The whole structure formed by the layer or sheet *a* and backing *b* is stuck or otherwise attached to a rigid supporting frame *c* of wire which may be built up of lengths of wire placed a convenient distance apart and if necessary be strengthened by other lengths of wire extending from side to side of the frame in order to form trellis work of very large mesh.

By having the baffles thus arranged adjacent to one another and spaced apart to form unrestricted air passages therebetween, there is little change in the volume of air passed through the separator whether the wadding is clean or dirty. Each baffle divides the current of air into a plurality of separate jets which impinge on the next baffle of the series, and the dust thus forcibly projected against the baffle is embedded by its own momentum in the wadding, and is there entrapped and held. Such dust as may escape entrapment in the first baffle of the series will be entrapped in subsequent baffles, so that the air on leaving the separator may be made substantially pure.

It will be readily seen that in a dust collecting element constructed in this way the whole of its perforated area is free for the passage of air and the element is so rigid that it cannot get out of shape during the working of the apparatus.

The supporting frame *c* may readily and safely be shaken for cleaning purposes as the backing sheet *b* insures the fibrous layer or sheet *a* maintaining sufficient rigidity for its preservation.

110

What I claim is:—

1. In a dust separator, a plurality of air-baffles arranged adjacent to one another and spaced apart to form unrestricted air-passages therebetween, each of said baffles having perforations staggered with respect to the perforations of adjacent baffles to divide the current of air into a plurality of separate jets which impinge upon the next baffle of the series, each of said baffles having a facing layer of fluffed-up wadding providing a material of very loose texture cushioning the air jets directed thereagainst and deflecting it through the loose fibers thereof to entrap and retain the dust particles carried by the air-jets.

2. A baffle for dust separators of the

character described, consisting of a sheet of wadding with perforations therein, and a backing sheet of relatively rigid material for said wadding having perforations registering with those of the wadding, said sheet of wadding having its receiving face fluffed-up to provide a material of very loose texture, cushioning an air-jet directed thereagainst and deflecting it through the loose fibers thereof to entrap and retain the dust particles carried by the air-jet.

Signed at Paris, France, this 29th day of January, 1912.

MARCEL COMBEMALE.

Witnesses:

LOUIS FAUTRAL,
H. C. COXE.