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(54) **FILTER WITH BOTH CONVENTIONAL AND SCENTED FILTRATION**

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(57) **ABSTRACT**

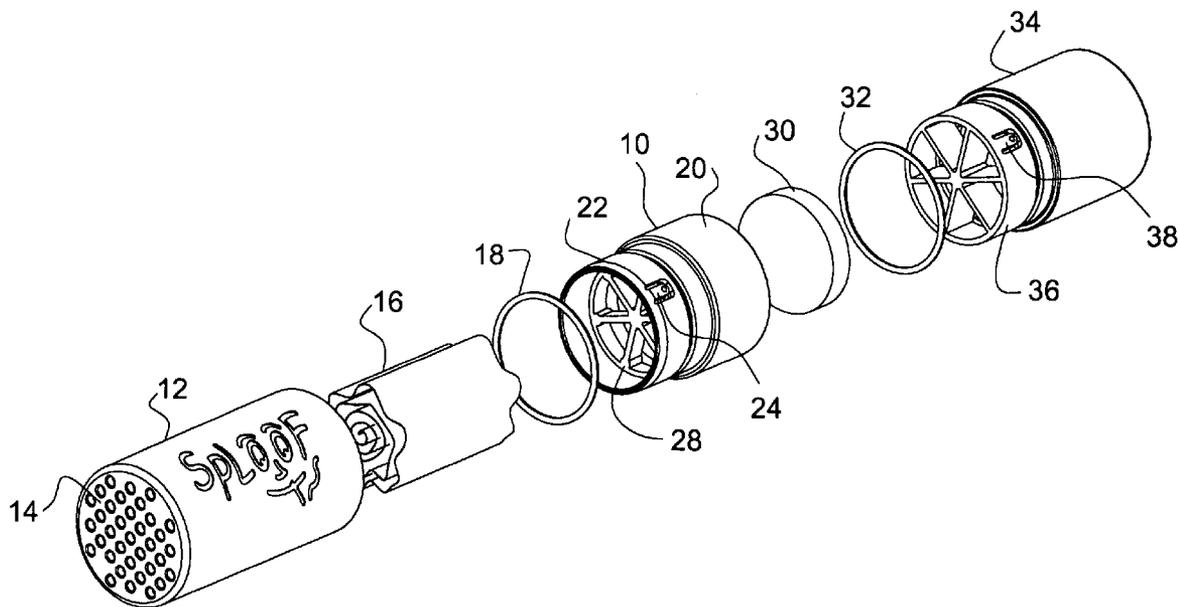
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A multi-component filter for tobacco smoke and the like comprises a mouthpiece section and two filter sections respectively containing conventional filtration material and scented filtration material in the form of porous scented paper adapted to disguise the odor of the smoke with a fresh clean odor. The sections are telescopically assembled with small spring clips co-operating with annular grooves for releasable connection of the same.



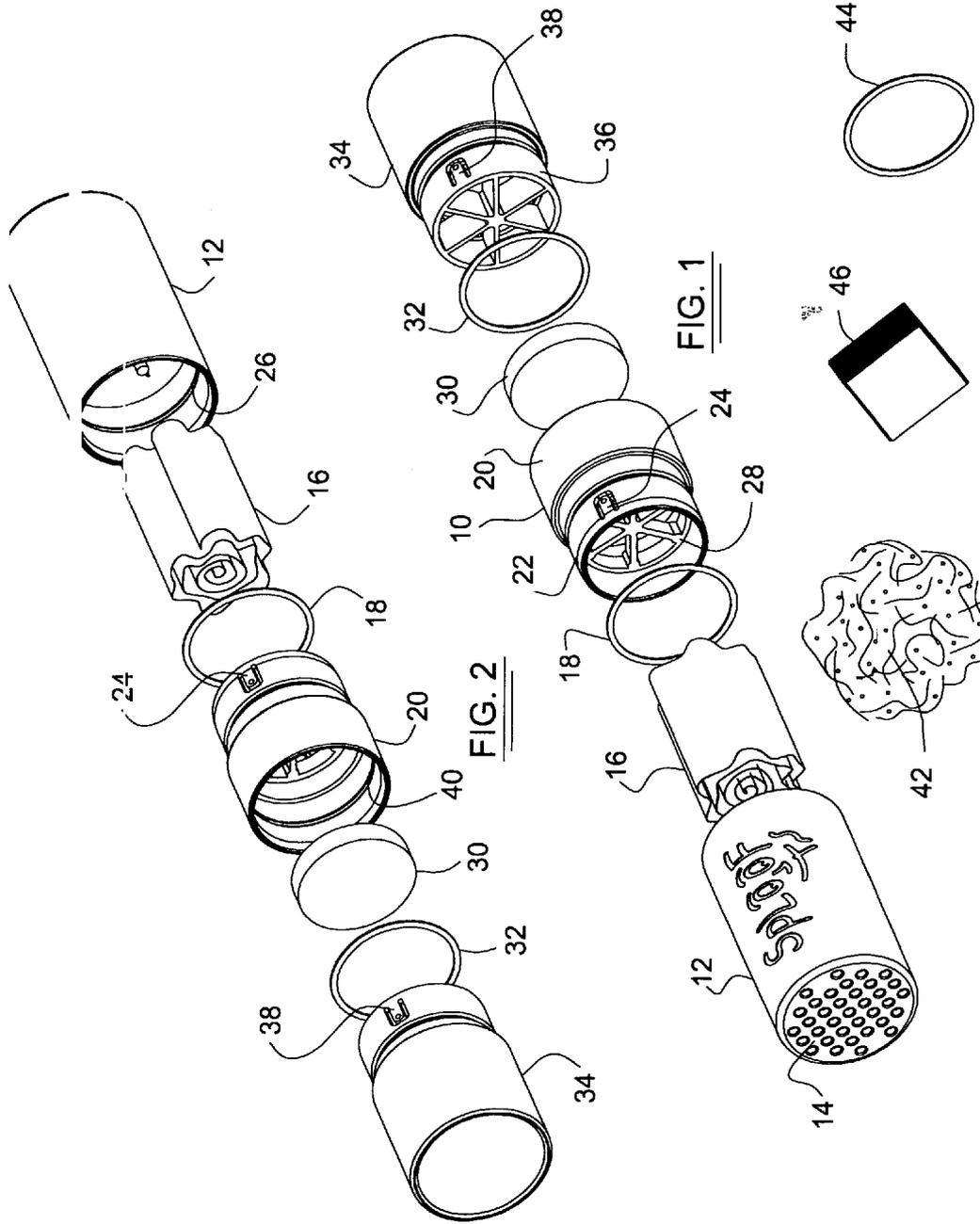


FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

## FILTER WITH BOTH CONVENTIONAL AND SCENTED FILTRATION

### BACKGROUND OF THE INVENTION

**[0001]** A multitude of filters for tobacco smoke and the like are found in the prior art in a wide variety of types and configurations and many different modes of operation. It is believed, however, that despite the proliferation of filters none of the filters presently available is completely satisfactory. The main reason for this is the lingering unpleasant odor of the smoke even after unhealthy and dangerous resins, toxins and other harmful elements may be completely filtered from the smoke.

**[0002]** Accordingly, it is the general object of the present invention to provide a simple and efficient multi-component filter which will not only eliminate the harmful elements from tobacco smoke and the like but which will also effectively disguise the foul odor of the smoke.

### SUMMARY OF THE INVENTION

**[0003]** In fulfillment of the foregoing object and in accordance with the present invention, a multi-component filter is provided and comprises at least two filter sections detachably connected together and arranged substantially in series alignment with each other for the sequential flow of smoke there through. One of the filter sections contains conventional filtration material for the removal of resins and harmful toxins from the smoke and the other filter section contains filtration material adapted to disguise the odor of the smoke with a fresh smelling fragrance. Preferably, a mouthpiece section is also provided and at least two of the sections are detachably connected together for removal and replacement of filtration material. Optionally, a first filter section may contain an activated carbon filtration material and a second filter section may contain a stack of scented paper of the type employed in disguising the odor of fabric in clothes dryers.

**[0004]** The manner in which the filter sections are detachably connected together may of course vary widely within the scope of the invention, but a presently preferred method comprises a telescopic assembly of the sections with a releasable snap connection means securing the sections in assembled relationship.

**[0005]** Finally, one or both of the filtration materials may not be self-contained, as for example, in the case of a granular filtration material which may escape from its section and intermix with other filtration material or which may even escape altogether from the filter. In this event, diaphragm means which are pervious to smoke, but impervious to the filtration material, may be required between filter sections to define discrete individual chambers containing and positively entrapping the filtration materials.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0006]** FIG. 1 is an exploded perspective view showing the multi-component filter of the present invention,

**[0007]** FIG. 2 is a second perspective view similar to FIG. 1 but with the filter reversed one hundred and eighty (180) degrees,

**[0008]** FIG. 3 is a view of a mass of granular filtration material,

**[0009]** FIG. 4 is a perspective view of a stack of filtration paper, and

**[0010]** FIG. 5 is a perspective view of a diaphragm.

### DESCRIPTION OF PREFERRED EMBODIMENTS

**[0011]** Referring now particularly to FIG. 1, a multi-component filter in accordance with the present invention is indicated generally by the reference numeral 10. A second or discharge section 12 of the filter has a perforate discharge end wall 14 and preferably takes a tubular or hollow cylindrical configuration. A roughly crumbled or rolled up sheet or sheets of scented paper 16 is shown adjacent the section 12 and is of course disposed within the section when the filter is in its assembled condition. Next in progression rightwardly and upwardly, a gasket 18 is optionally provided to prevent undue leakage of smoke outwardly between the filter sections 12 and 20. Filter section 20 has a reduced diameter end portion 22, which enters an adjacent end portion of filter section 12 during a telescopic assembly of the two sections. A pair of small spring clips 24, 24 are provided on opposite sides of the reduced diameter end portion 22 and, when the sections 12 and 20 are assembled, the clips co-operate with an internal annular groove 26, FIG. 2, to releasably secure the sections 12 and 20 together. Disposed within the section 20 is a stop member 28 having a number of arms which are arranged circum-axially and which provide adequate inter-arm space for the axial passage of smoke there through. The stop member 28 engages and positions conventional filtration material 30 within the section 20 when the material is entered in the section in its assembled position. The filtration material 30 is porous but somewhat compacted and self-contained and will not blow through the stop member 28.

**[0012]** A gasket 32 is similar to the gasket 18 and provides a similar function with respect to the filter section 20 and a final filter section 34 that serves as a mouthpiece. The mouthpiece section 34 has a reduced diameter end portion 36 which is similar to the end section 22 of the filter section 20 and which serves a similar purpose. A pair of spring clips 38, 38, one shown, serve the same connecting function as the clips 24, 24 with regard to the sections 20 and 34 in cooperation with an annular groove 40, best shown in FIG. 2.

**[0013]** In FIG. 3, a mass of granular filtration material 42 is illustrated and it will be understood that it may be substituted for the conventional filtration material 30 described above as well as the filtration material 16. When this occurs, as mentioned above, it becomes necessary to provide discrete chambers for the filtration material, and diaphragms such as the one shown in FIG. 5 are provided between filter sections. As will be apparent, the diaphragms may merely be substituted for the gaskets 18 and 32 with the result that the filtration material will be entrapped in individual chambers in the filter sections 12 and 20.

**[0014]** FIG. 4 illustrates a stack of scented paper 46 which may be substituted for the filtration material 16 and which will provide improved results with the stack arranged for flow there through in series and at right angles with respect to the plane of the paper.

**[0015]** As will be apparent from the foregoing, a filter device of desirably simple construction has been provided and yet the desired result of dual filtration of harmful elements as well as the disguise of foul odor is readily achieved.

1. A multi-component filter for tobacco smoke and the like comprising at least two filter sections arranged substantially in alignment with each other for the sequential flow of smoke there through in series, one of said filter sections containing

conventional filtration material adapted to remove resin and harmful toxins from the smoke and tending to absorb the foul odor of the smoke, and the other filter section containing a scented filtration material adapted to disguise the odor of the smoke with a fresh smelling fragrance, said filter sections being detachably connected together so as to be opened for the removal and replacement of the filtration materials.

**2.** A multi-component filter for tobacco smoke and the like as set forth in claim **1** wherein a mouth piece section is included, and wherein the mouthpiece and filter sections comprise three parts with at least two of the parts detachably connected together and with the two filter sections arranged downstream of the mouthpiece.

**3.** A multi-component filter for tobacco smoke and the like as set forth in claim **1** wherein a first filter section adjacent the mouthpiece contains an activated carbon filter.

**4.** A multi-component filter for tobacco smoke and the like as set forth in claim **3** wherein a second filter section downstream of the first filter section contains at least one thin porous filter element permeated with a substance which provides a pleasant odor, and which in turn disguises the odor of the tobacco.

**5.** A multi-component filter for tobacco smoke and the like as set forth in claim **2** wherein the second filter section contains a stack of scented sheets of porous scented paper of the type employed in disguising the odor of fabric in a clothes dryer, the sheets being arranged for the flow of smoke there through in series.

**6.** A multi-component filter for tobacco smoke and the like as set forth in claim **1** wherein a membrane which is pervious to smoke but impervious to filtration material is disposed between the filter sections.

**7.** A multi-component filter for tobacco smoke and the like as set forth in claim **3** wherein two (2) membranes which are pervious to smoke but impervious to filtration material are disposed respectively between the mouthpiece section and the two filter sections.

**8.** A multi-component filter for tobacco smoke and the like as set forth in claim **1** wherein membranes which are pervious to smoke but impervious to filtration material are disposed between the filter sections and at the discharge end of the filter.

**9.** A multi-component filter for tobacco smoke and the like as set forth in claim **1** wherein the filter sections are telescopically inter-engaged at their opposite end portions with a releasable snap connection means securing them in assembled relationship.

**10.** A multi-component filter for tobacco smoke and the like as set forth in claim **9** wherein the releasable snap connection means comprises at least one small spring clip member on one filter section and a co-operating annular groove on the other filter section.

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