Jan. 17, 1961 J. MAZAR BARNETT 2,968,305

FILTER CIGARETTE

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Fig. 1

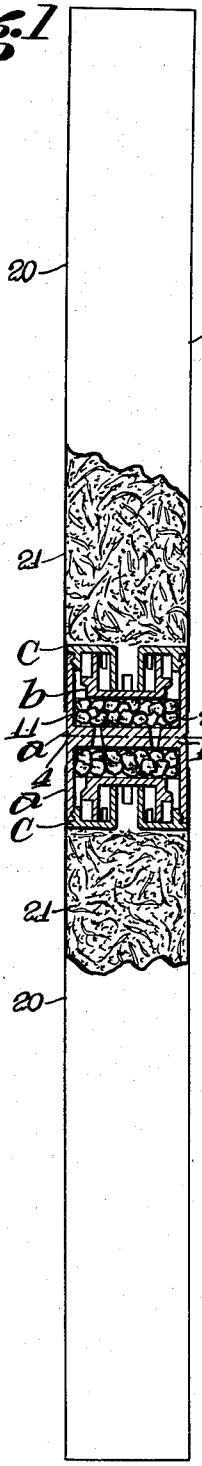


Fig. 2

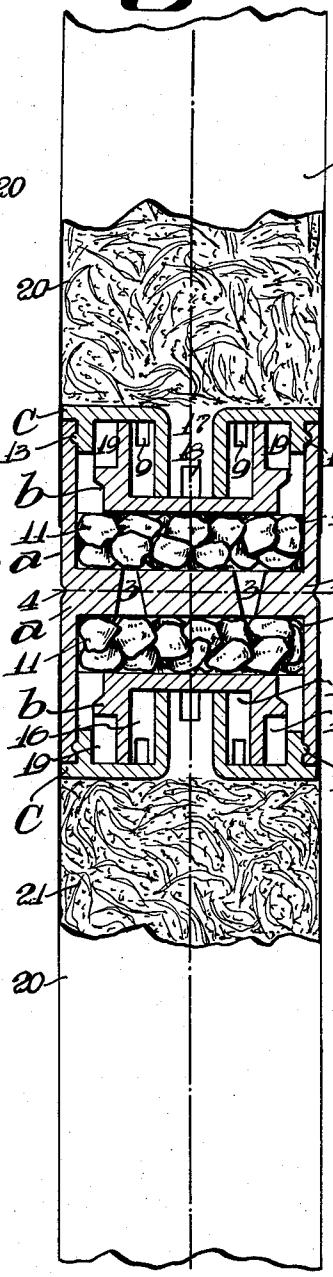
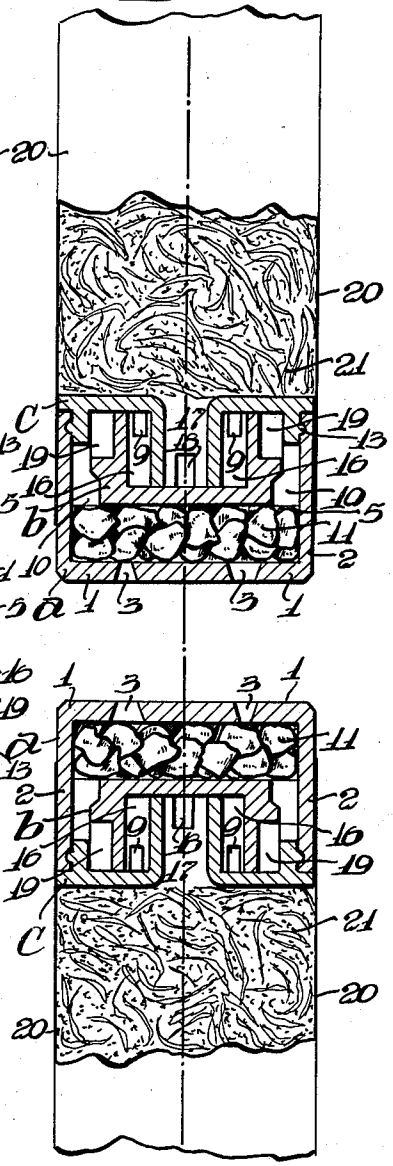


Fig. 3



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Fig. 4

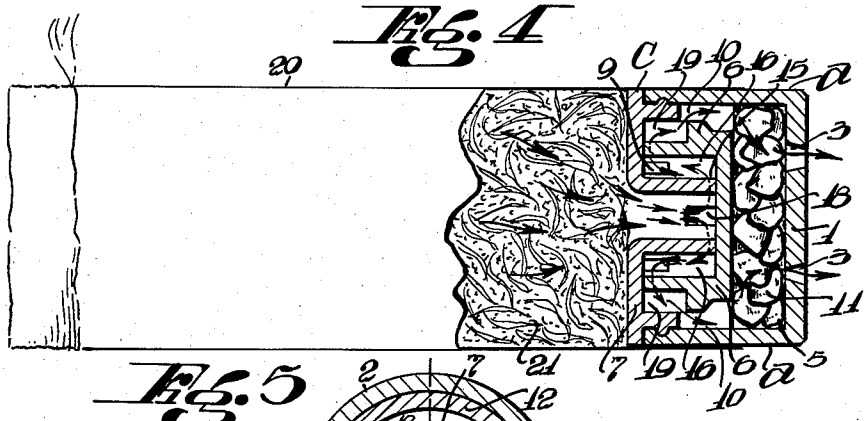


Fig. 5

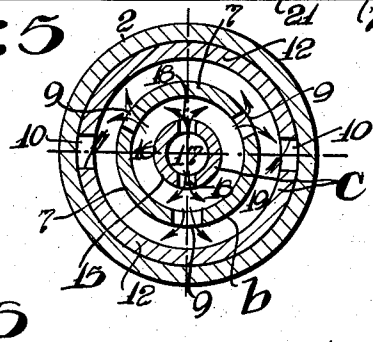


Fig. 6

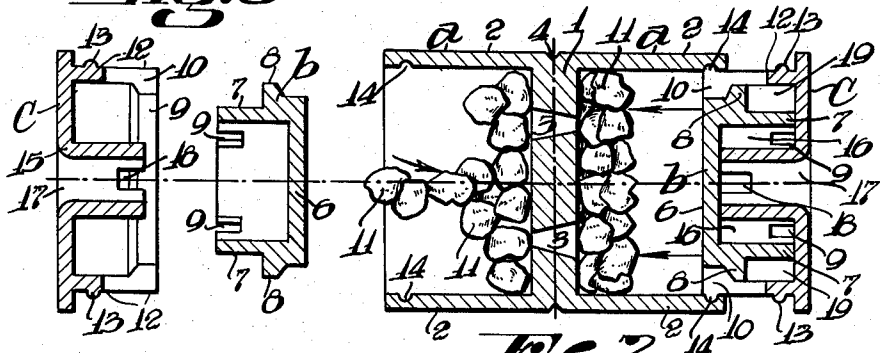
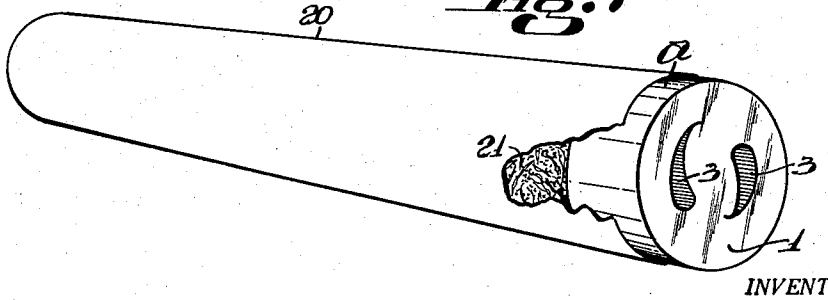


Fig. 7



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FILTER CIGARETTE

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3 Claims. (Cl. 131—10)

The present invention relates to a filter cigarette and more particularly to a novel construction of cigarette and filter wherein a capsule-like filter is employed which acts by condensation and adsorption on smoke.

According to the invention, the filter is disposed at one end of the tobacco of the cigarette and constitutes a multi-sectioned intercepting unit between the cigarette and the smoker's mouth, whereby tars, most of the nicotine and other impurities are removed from the smoke and collected in the unit.

The intercepting unit generally comprises an outer capsule having at one end outlet openings for the passage of the smoke towards the smoker's mouth and against this end the filtering material is disposed, preferably in the form of granules of the type that acts by adsorption. The outer capsule has therewithin an inner capsule of special configuration and an interfitting cap with a projecting boss, thereby forming a tortuous or labyrinthine passageway with numerous changes in direction to achieve maximum detoxification and purification of the smoke in its travel from the burning tobacco to the smoker's mouth.

An object of the invention is to provide a cigarette with a filter which removes a maximum of noxious and toxic matter in the smoke and which is efficient throughout the smoking of the entire cigarette.

Another object is to obtain an efficient adsorption by means of filtering grains located in the filter just prior to the passing of the smoke to the smoker's mouth and beyond, in the path of travel of the smoke, a portion of the filter which acts as a condenser, thus conditioning the smoke for the subsequent adsorption.

Another object is to prevent hot smoke from reaching the smoker's mouth by passing it through a tortuous or labyrinthine path which, through condensation and adsorption, cools the smoke as well as removing toxicants therefrom.

A further object resides in reducing the speed of the traveling smoke to obtain a lower temperature.

Still another object of the invention is to provide the smoker with a cigarette that does not require a separate sigarette holder for the filtering of the smoke.

Further objects and advantages of this invention will be understood from the following description taken in conjunction with the accompanying drawings, in which:

Fig. 1 shows a double unit made up of two filter cigarettes united to each other at their filtering extremities and adapted to be transversely severed to form completed individual filter cigarettes;

Fig. 2 is an enlarged fragmentary portion of Fig. 1;

Fig. 3 is a view similar to Fig. 2 of the two cigarettes obtained upon severance;

Fig. 4 shows a cigarette of the invention in use graphically illustrating by arrows the labyrinthine path of the smoke toward the smoker's mouth;

Fig. 5 is a transverse sectional view taken through the filter portion of the cigarette of Fig. 4;

Fig. 6 is a longitudinal sectional view of the dual filters for two cigarettes, showing the manner in which they are

loaded with filtering material and assembly of the parts made; and

Fig. 7 is a perspective view of a filter cigarette with filter according to the principles which are described herein.

In the drawings, *a*, *b* and *c* are three filter parts which may be of any suitable material, preferably of polyethylene or similar type plastic which is resilient and durable and which permits of cutting as by a knife to separate the two units which are simultaneously manufactured.

The part *a* is the outer or principal capsule element formed by the disc-shaped end **1** and wall **2**, the lower end **1** having openings **3** for the passage of smoke to the smoker's mouth and set against another identical capsule element as shown in Figs. 1 and 2. The pair of capsule elements *a* are molded together as one piece with common ends **1**, so that by transverse cutting along line **4** separation of the elements *a* is obtained, as shown in Figure 3. The inner surface of wall **2** is provided with spaced recesses or depressions **14**.

The parts *b* and *c* are fitted together in the relationship shown in part *a* spaced from end **1**, forming a condenser and labyrinthine passages for smoke and leaving a chamber **5** between for the reception of the filtering granules **11** which are thus located between end **1** of part *a* and end **6** of part *b*.

The part *b* is an inner capsule element, the end **6** of which is parallel to and spaced from end **1** of part *a* but is of lesser diameter so that its wall **7** lies inwardly of wall **2**. Wall **7** is provided with openings **9** spaced therearound and with an external annular shouldered projection **8**.

The part *c* is a cap member, which is also of capsule form, and the wall **12** of which has openings **10** and a portion extending into proximity with the terminus of wall **7** of part *b*, as shown in Fig. 4, and which portion has teeth or projections **13** which interfit with recesses **14** of part *a*. The central portion of part *c* has a boss or projection **15** with a cavity **17** and the end of the boss has openings **18** laterally directed. When parts *b* and *c* are assembled, a chamber **16** is formed between wall **7** and boss **15** and another chamber **19** is formed between walls **7** and **12**. Chambers **16** and **19** are annular cells, as will be appreciated. When parts *b* and *c* are assembled, as shown, they are then introduced to part *a* subsequent to the positioning of filtering granules **11** in part *a*, the mode and sequence of assembly being illustrated in and clear from Fig. 6, in particular. As will be understood from Fig. 7, the paper wrapper **20** encloses both the tobacco **21** and the filter, which latter is aligned as a continuation of the tobacco.

It will also be understood that part *a* is formed or molded of the plastic material as a double or dual capsule which is subsequently severed along line **4** (Fig. 6) at any desired stage either before or after complete assembly with parts *b* and *c* and/or tobacco **21** and paper wrapper **20**.

From Fig. 4, it will be seen that smoke from the cigarette passes into cavity **17**, through openings **18** to chamber **16** and via openings **9** to chamber **19** thence via openings **10** into contact with filtering material **11** to the smoker's mouth through openings **3** in end **1**. This tortuous or labyrinthine path of the smoke effects exceptionally good detoxification and purification of the smoke by a combination of condensation and adsorption, thus achieving the objects hereinbefore stated.

The filtering granules **11**, instead of being grains, may be in powdered state, laminas, scales, filiform elements, etc. and are composed of silica gel, activated carbon or other suitable material capable of detoxifying and purifying smoke.

Within the terms of the appended claims, various modi-

fications of detail and structure may be made without departing from the scope or principles of the invention.

I claim:

1. In a filter cigarette, a chambered filter composed of a plurality of interfitting capsule-like parts configured to form a labyrinthine path effecting changes of direction and speed of smoke passing therethrough and filtering material disposed in a chamber of said filter and over which the smoke passes as it leaves the filter, said capsule-like parts including an outer capsule element having an end provided with openings and a wall with depressions in its inner surface, an inner capsule element having an imperforate end and a wall with openings therein and with an external annular shouldered projection inwardly spaced from the wall of the outer capsule element and a cap member having a hollow boss projecting into said inner capsule element and having openings therein, the boss being inwardly spaced from the wall of the inner capsule element, said cap member having a second boss provided with projections thereon for reception in the wall depressions of the outer capsule element, said second boss being spaced from the wall and from the external projection of the inner capsule element, the filtering material being located between the imperforate end of the inner capsule element and the opening-provided end of the outer capsule element the smoke passing inwardly through the openings of the cap member and downwardly within the space between the inner cap member and the inner capsule element through the openings in the inner capsule element radially outwardly and upwardly around the projection and within the space between the inner capsule element and the outer capsule element through the filtering material and emitting through the apertures in the end wall of the outer capsule element.

2. The structure as set forth in claim 1, wherein the filtering material is granules of silica gel.

3. The structure as set forth in claim 1, wherein the filtering material is granules of activated carbon.

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