

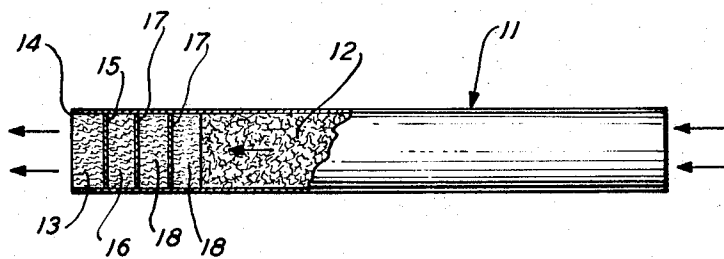
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CIGARETTE FILTER

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3,294,096

## CIGARETTE FILTER

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20 Claims. (Cl. 131-10.7)

This invention relates generally to cigarette filters and, particularly, to cigarette filters including materials which sequester, retain or remove tars from the stream of gases drawn through a cigarette, by the smoker, so that they do not emerge from the tip.

It is an object of the invention to provide a filter cigarette which efficiently removes tars.

This object and advantage, as well as other objects and advantages may be attained by the device shown by way of illustration in the drawings in which:

FIGURE 1 is a vertical sectional view of one form of a filter cigarette including a filtration material;

The smoking of a cigarette produces a smoke stream of warmed air generally believed to carry nicotine and other complex products one of which is commonly referred to as "tar." The possibility that the "tars" may have an adverse effect on humans is generally acknowledged, although somewhat disputed. Numerous efforts have been made to sequester or remove the tars in the filter tip provided in cigarettes.

It has been found that kelp has the capacity to sequester, retain or otherwise remove tars from the stream of warmed air emanating from the tip, when a cigarette is smoked.

Kelp belongs to the group of plants known as algae. They range from the microscopic denizens of the sea to the giant kelp plants, whose fronds may attain lengths of over 600 feet. The types of kelp generally referred to herein are the large brown seaweeds of the family lam-mariaceae and fucaceae. It has been found that these weeds may be dried, and reduced to a fine, greyish-green powder. Kelp as used herein refers to those seaweeds. It does not refer to the ash-residue obtained from burning kelp. In accordance with Webster's New International Dictionary, Second Edition, Unabridged (1954 copyright), at page 2011, "pulverulent" as used herein means "consisting of, or reducible to fine powder."

A cigarette 11 of ordinary character is prepared: a paper cylinder, stuffed with shreds of tobacco 12. Numerous types of filtration materials are today well known. Probably the oldest is cotton. All filtration materials are generally characterized by their ability to be penetrated by gaseous matter, to which they offer little resistance. Some filtration materials, offering greater resistance to penetration by gaseous matter, are less suitable because they lack "draw" quality, or modify the "draw" quality of the ordinary unfiltered cigarette: the capacity to easily pass the warmed air sucked through the filter by the smoker. While filtration materials will be referred to, the function of the material is not to filter, but only to retain the kelp, rather than filter the combustion material, from being sucked into the mouth of the smoker, and to hold it in place.

The filtration material is formed into a wad 13 or section having a cross-sectional configuration conforming to that of the cigarette. The wad may be approximately 3/8 inch long and placed at the end 14 of the cigarette. A thin layer of pulverulent kelp 15 is placed over this wad 13. Only sufficient kelp 15 is deposited to cover the wad completely. This layer may be 1/64 of an inch thick or less. To retain the pulverulent kelp 15 in intercepting relation with a stream (indicated by the arrows) of combustion products of the tobacco 12 sucked through the cigarette 11 by a smoker, a second wad 16 of filtration

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material similarly dimensioned is positioned within the cigarette 11 in spaced relation to the first wad 13. This distance between the wads 13, 16 should only be sufficient to retain the kelp 15 spread across the wad 13.

Additional layers 17, 17 of kelp, supported by additional wads 18, 18 are optional, but improve the efficiency of the filter in removing the tars.

When the cigarette is smoked, the removal of tars is thereby achieved by contact with kelp, and is attained at a level beyond that achieved by more conventional filters.

The foregoing is intended merely as illustrative of an embodiment of the invention, for many changes may be made in the construction, selection, and arrangement of the parts as well as in the material, all within the scope of the appended claims without departing from the spirit of the invention.

What is claimed:

1. A filter cigarette comprising,

- (a) a generally cylindrical tobacco section,
- (b) an outer section and an inner section of filtration material disposed at one end of the tobacco section with a space between them;
- (c) dried, pulverulent kelp disposed in the space in the filter.

2. A filter cigarette comprising,

- (a) a generally cylindrical tobacco section,
- (b) a plurality of sections of filtration material disposed in spaced relation to each other, transversely, at one end of the tobacco section,
- (c) dried, pulverulent kelp disposed in the spaces between the sections of filtration materials.

3. A filter cigarette according to claim 1 in which the filtration material is cotton.

4. A filter cigarette according to claim 2 in which the filtration material is cotton.

5. A filter cigarette comprising,

- (a) a generally cylindrical tobacco section,
- (b) an outer section and an inner section, of material penetrable by air, disposed at one end of the tobacco section with a space between them,
- (c) dried, pulverulent kelp disposed in the space.

6. A filter cigarette comprising,

- (a) a generally cylindrical tobacco section,
- (b) an outer section and inner sections of material penetrable by air, disposed at one end of the tobacco section, with spaces between the sections,
- (c) dried, pulverulent kelp disposed in the spaces between the sections of filtration material.

7. A filter for a tobacco smoking article comprising dried particles of kelp.

8. A filtered tobacco smoking article comprising:

- (a) a combustible tobacco section adapted to generate smoke upon combustion,
- (b) a filtration section in smoke intercepting but penetrable relationship to the tobacco section, and
- (c) dried particles of kelp disposed in the filtration section.

9. A filtered tobacco smoking article comprising:

- (a) the article in accordance with claim 8 in which,
- (b) the kelp is pulverulent.

10. A filtered tobacco smoking article comprising:

- (a) the article in accordance with claim 9 in which,
- (b) the kelp is unicinated.

11. A filtered tobacco smoking article comprising:

- (a) a generally cylindrical combustible tobacco section,
- (b) a filtration section at one end of the tobacco section,
- (c) dried particles of kelp disposed in the filtration section.

12. A filtered tobacco smoking article comprising:
  - (a) the article in accordance with claim 11 in which,
  - (b) the kelp is pulverulent.
13. A filtered tobacco smoking article comprising:
  - (a) the article is accordance with claim 12 in which, 5
  - (b) the kelp is unincinerated.
14. A filtered tobacco smoking article comprising:
  - (a) the article in accordance with claim 11 in which,
  - (b) the kelp is disposed transversely across the filtra-  
tion section in intercepting but penetrable relation-  
ship to smoke emanating from the tobacco section. 10
15. A filtered tobacco smoking article comprising,
  - (a) the article in accordance with claim 14 in which,
  - (b) the kelp is pulverulent.
16. A filtered tobacco smoking article comprising, 15
  - (a) the article in accordance with claim 14 in which,
  - (b) the kelp is unincinerated.
17. A filter for a tobacco smoking article comprising:
  - (a) dried, pulverulent kelp.
18. A filter for a tobacco smoking article comprising: 20
  - (a) unincinerated dried particles of kelp.

19. A filter for a tobacco smoking article comprising:
  - (a) the article in accordance with claim 7 in which,
  - (b) the kelp is sufficiently finely divided to sequester  
undesired combustion products.
20. A filter for a tobacco smoking article comprising:
  - (a) the article in accordance with claim 19 in which,
  - (b) an air permeable mass of solid material supports  
the kelp.

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