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SMOKING ARTICLE COMBINATION

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FIG.1

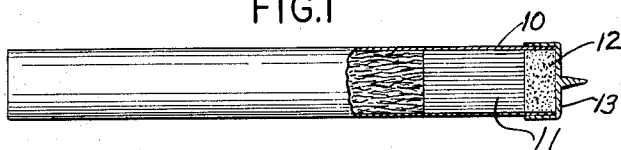


FIG.2



FIG.3



FIG.4



FIG.5



FIG.6



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## SMOKING ARTICLE COMBINATION

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Continuation of application Ser. No. 219,503, Aug. 27,  
1962. This application July 8, 1964, Ser. No. 381,091  
3 Claims. (Cl. 131-4)

This application is a continuation of my application  
Serial No. 219,503, filed August 27, 1962, now abandoned.

This invention relates to an improved construction of  
smoking articles containing a means for counteracting  
the noxious effects of tobacco smoke on the human body.  
It has for one of its important objects the provision of  
a convenient means of supplying an antidote to the toxic  
effects of tobacco smoke and also a means for insuring  
that the antidote is consumed before the tobacco is  
smoked.

The consumption of cigarettes has increased enormously  
in the past decades. There has been a parallel increase  
in the incidence of lung cancer among the population.  
Recent studies have shown that the incidence of lung  
cancer is much higher in smokers than in non-smokers.  
Even after many studies have brought out the dangers  
consequent to the smoking of cigarettes, the consumption  
of cigarettes has continued to rise in greater and greater  
volume.

Studies have shown that tobacco smoke contains car-  
cinogenic constituents which when inhaled deposit on  
the delicate lung tissue and membranes, set up irritation  
which on long continued action start the foci for the  
development of cancerous growths.

In addition to this direct contact irritation of the lung  
tissues, tobacco smoke has many other systemic effects  
on the body. For instance, the toxic alkaloid, nicotine,  
a constituent of all tobacco smoke has a direct poisonous  
reaction in the body in minute amounts. This accounts  
for many of the toxic disturbances exhibited by new  
smokers who have not had time to build up a bodily  
immunity or tolerance to the toxic doses of nicotine in  
the tobacco smoke.

Other noxious constituents of the smoke besides nico-  
tine also exert undesirable systemic effects on the body.  
Profound changes in the vascular system and other organs  
of the body are caused by tobacco smoke. A very im-  
portant effect on the body chemistry, causing far-reaching  
consequences, is the destructive properties of tobacco  
smoke on the vitamin content of the body. Tobacco  
smoke and its constituents have a destructive action on  
vitamin C both in vitro and in vivo.

Vitamin C or ascorbic acid is the essential vitamin  
whose lack in the diet causes the sometimes fatal disease,  
scurvy. Vitamin C will be referred to hereafter as as-  
corbic acid.

This destruction of ascorbic acid by tobacco smoke  
causes a depletion of the ascorbic acid reserves of the  
body in heavy smokers, bringing with it the attendant  
symptoms of the deficiency state such as a lowered re-  
sistance to disease and the inability of the body to suc-  
cessfully cope with and combat the toxic manifestations  
of the noxious chemicals contained in the tobacco smoke.

Ascorbic acid is very important and biochemically es-  
sential for the normal metabolism of the body. In  
addition to its protective and curative effects in scurvy,  
it is vital for the maintenance of the health and integrity

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of all the tissues. Its presence is required in many es-  
sential metabolic processes among which are the resist-  
ance to disease and infections and in the detoxification  
of many poisonous substances that the body absorbs by  
contact, inhalation or ingestion.

Ascorbic acid is not stored to any extent by the body,  
making its continued daily ingestion a necessity for good  
health. The National Research Council recommends  
the daily intake of 75 to 150 milligrams of ascorbic acid.  
Complete deprivation results in death from scurvy in  
a comparatively short space of time. If the intake of  
ascorbic acid is sub-marginal or the ingested amount is  
largely destroyed by tobacco smoke or other exogenous  
toxins or stresses, symptoms of frank scurvy may not  
develop but the prescorbutic state will exist. In this  
state the body's biochemical metabolism is operating under  
sub-optimal conditions and its victims have a general feel-  
ing of lassitude and "not feeling just right" and have  
a greatly lowered resistance to the infectious diseases  
and exogenous toxins and the inability to cope with  
the many stresses of living including smoking.

There are many papers in the scientific literature show-  
ing the destructive effect of tobacco smoke and its con-  
stituents on ascorbic acid. Bourquin and Musmanno  
(*American Journal of Digestive Diseases*, 20: 75-77,  
1953) in experiments on humans showed a drop in the  
blood ascorbic acid levels due to smoking. In vitro ex-  
periments on human blood showed a destruction of its  
ascorbic acid content by nicotine. Similar drops in the  
blood plasma levels of ascorbic acid in smokers was  
shown by Dietrich and Buchner (*Deutsche Gesundheit-*  
*wesen*, 15: 2494-2495, 1960). They also showed a de-  
crease in urinary excretion of ascorbic acid in smokers  
which indicated a destruction of the ascorbic acid by the  
smoke. Venulet (*Medizinische Klin.*, 49: 959-962, 1954)  
showed similar results on tests with animals, he also  
discusses the various organs weakened by the losses of  
ascorbic acid. McCormick (*Archives of Pediatrics*, 69:  
151-155, 1952) discusses the ability of ascorbic acid to  
neutralize toxins of exogenous origin and states that he  
has "determined by laboratory and clinical tests that the  
smoking of one cigarette neutralizes in the body approxi-  
mately 25 milligrams of ascorbic acid, or the amount in  
one medium-sized orange."

Based on this work of McCormick it is easy to calculate  
that a pack-a-day smoker will destroy approximately 500  
milligrams of his body's ascorbic acid. It is not surpris-  
ing, therefore, that most heavy smokers are in a chronic  
state of sub-marginal ascorbic acid nutriture and are thus  
exposed to all the hazards of the preascorbic state.

It is my belief and the belief of others that this chronic  
state of ascorbic acid depletion is responsible for many  
of the deleterious manifestations of smoking. The de-  
pleted tissues and membranes of the respiratory tract have  
lowered resistance to the irritating constituents of tobacco  
smoke. This lowered resistance over long periods of  
exposure may possibly predispose these tissues to the  
development of cancerous foci from the carcinogenic  
agents in the tobacco smoke.

Further, the integrity of the collagenous tissue is wholly  
dependent upon ascorbic acid. The body is unable to  
synthesize collagen in tissues depleted of ascorbic acid.  
Collagen is the groundwork or cementing substance that  
holds the cells of a tissue together and intact. If the  
collagen is weakened or lacking in the ascorbic acid de-  
pleted state, any primary cancerous lesion that may form

in the lung or upper respiratory tract will readily metastasize and break away and spread to other parts of the body because the normal restraint of a firm collagenous cementing network surrounding and holding the cells together will be lacking.

The increase in the incidence of lung cancer due to the increase in smoking cigarettes may be nothing more than a physiological response of the body to a long continued state of ascorbic acid depletion combined with the insults of chronic exposure to inhaled chemical irritants of tobacco smoke.

My invention is a direct attack on this problem by supplying ascorbic acid to the smoker in a readily available and pleasant form to replace that destroyed by the tobacco smoke.

Another object of the invention is that the ascorbic acid is a part of the smoking article so that the amount of ascorbic acid consumed by the smoker is in direct relation to the number of cigarettes smoked.

A most important object of my invention is that the smoker cannot fail to remember to take this ascorbic acid supplementation before smoking the cigarette, cigar or other smoking article because the particular construction of the combination makes it necessary to remove the ascorbic acid-containing material before the article can be smoked.

The drawing attached to this specification illustrates some of the means for accomplishing the purposes of this invention. FIGURE 1 is a side view of a cigarette, partly in section and showing the invention as applied to a recessed filter cigarette. FIGURE 2 is a view similar to FIGURE 1 but illustrating a form of the invention applied to a non-recessed filter cigarette or a non-filter cigarette or cigar. FIGURE 3 is a view similar to FIGURE 1, but showing an edible tablet inserted in the end of a filter (or non-filter) cigarette. FIGURE 4 is a view similar to FIGURE 1, but showing an edible tablet inserted in the end of a recessed filter cigarette. FIGURE 5 is a view similar to FIGURE 1, but showing a recessed filter cigarette with the end stuffed with an edible ascorbic acid fluff. FIGURE 6 is a view similar to FIGURE 1, but showing a still further modification.

In FIGURE 1 there is shown the invention as applied to a recessed filter type cigarette. The outside membrane, 10, forms the wall of the cigarette; the recessed filter, 11, defines a cavity at the end of said cigarette. This cavity contains granules of a pharmaceutical confection containing ascorbic acid. The ascorbic acid containing material, 12, is a palatable mixture which may be prepared by mixing ascorbic acid and a sweetening agent such as sugar or synthetic sweeteners. If necessary to increase the bulk and aid in granulation of the powders, some inert filling material such as mannitol may be added. This mixture is granulated to obtain the free-flowing dry granules which being water soluble, will dissolve readily in the saliva when taken into the mouth. A snug cover, 13, retains the granules in the cavity. In use cover, 13, is removed and the cigarette end is inverted into the mouth to permit the granules to fall upon the tongue. After dissolution in the saliva it is then swallowed. The cigarette is then smoked in the normal manner.

In FIGURE 2 there is shown another embodiment of the invention suitable for cigarettes or cigars. The figure shows a cigarette with the mouth end covered or capped with a removable cover, 17. This cover is prepared from an edible sheet material containing the desired dosage of ascorbic acid. It may also contain sweetening or flavoring agents to make the ingestion of the edible sheet material more palatable. The edible sheet material can be prepared by drying a solution of an edible film forming agent such as carboxy methyl cellulose or other water soluble gums or polyvinylpyrrolidone or proteinaceous film forming materials like egg albumen, soluble casein or mixtures thereof. The ascorbic acid may be dissolved

in the solution of the film forming agent before drying on a flat surface to obtain the soluble, edible, ascorbic acid-containing sheet material. In use the smoker removes the edible cover, 17, and allows it to dissolve in the mouth and in this way imbibes the requisite dosage of ascorbic acid. The cigarette or cigar may then be smoked in the usual fashion.

In FIGURES 3 and 4 there are illustrated cigarettes constructed to accommodate a shaped tablet containing the proper dosage of ascorbic acid and any flavoring or sweetening agents to make them more palatable. In FIGURE 3 the tablet, 30, is inserted into the mouth end of a filter cigarette by means of the inwardly projecting tip, 32. In FIGURE 4 the shaped tablet, 40, is fitted like a plug into the cavity, 41, formed at the mouth end of a recessed filter cigarette, 42. In each case the smoker removes the tablet from the cigarette with his teeth or lips and either chews or lets the tablet dissolve in his mouth. The cigarette is then lit and smoked as usual.

FIGURE 5 shows the application of edible filamentous fluff material containing ascorbic acid in conjunction with a recessed filter type cigarette. This ascorbic acid-containing fluff, 50, which is stuffed into the cavity, 51, at the recessed filter end of the cigarette, 52. This fluff is prepared by the centrifugal methods commonly used to prepare "cotton" candy. The smoker merely snags the ascorbic acid fluff with his teeth and removes it to his mouth where it dissolves and is swallowed. In this way he replaces the ascorbic acid that will be lost during smoking.

In FIGURE 6 there is shown a filter cigarette, 60, with a cavity, 61, in the filter which may be filled with ascorbic acid-containing granules as in FIGURE 1 or ascorbic acid containing fluff as in FIGURE 5 or with an ascorbic acid-containing tablet as in FIGURE 4.

These drawings illustrate some of the means for accomplishing the purposes of this invention. It is not intended that the scope of this patent be limited by the forms shown. Many variations are possible in constructional details which can be made by those skilled in the art without departing from the invention as defined in the claims.

I claim:

1. An improved elongated smokable tobacco product comprising a cylindrical body of tobacco having a cap-like member surrounding at least one end thereof and in slideable engagement therewith, said cap-like member being formed of an edible, water-soluble sheet-forming material containing a mass of ascorbic acid at least equal in weight to the amount of ascorbic acid lost in the human body in the smoking of said tobacco product.

2. In combination with an elongated smoking tobacco product a mass of ascorbic acid at least equal in weight to the amount of ascorbic acid lost by the human body in smoking said tobacco product, located adjacent one end thereof and means connecting said mass of ascorbic acid to said tobacco product in such a way that said mass may be removed from said tobacco product without destruction thereof, said mass of ascorbic acid and its connecting means completely obstructing one end of said tobacco product, said means for connecting said ascorbic acid to said tobacco product comprising an edible sheath surrounding one end of said tobacco product and said mass of ascorbic acid being disposed within said sheath.

3. An elongated smoking tobacco product comprising a tubular casing enclosing a charge of smoking tobacco, said tubular casing extending at one end past said charge of tobacco whereby a recess is formed in said end, a solid cylindrical tablet located in said recess in frictional engagement with the walls thereof substantially obstructing said end and extending outwardly from the end of said recess in such manner that its removal before smoking said tobacco product is facilitated; said tablet being edible and comprising a mass of ascorbic acid at least equal in weight

to the amount of ascorbic acid lost by the human body  
in smoking said tobacco product.

**References Cited by the Examiner****UNITED STATES PATENTS**

515,774	3/1894	Hotz -----	131—9
1,926,564	9/1933	Sharp -----	131—4
2,804,078	8/1957	Saffir -----	131—10
2,965,496	12/1960	Serdar -----	206—47
2,998,820	9/1961	Ades -----	131—10

**FOREIGN PATENTS**

932,560 12/1947 France.

**OTHER REFERENCES**

5 Lande: APC Publication 261,049, of May 11, 1943,  
131—17.

SAMUEL KOREN, *Primary Examiner.*

10 MELVIN D. REIN, *Examiner.*