

Sept. 4, 1962

T. ROWLANDS

3,052,164

MANUFACTURE OF MOUTHPIECE CIGARETTES

Filed Oct. 5, 1959

Fig. 1.

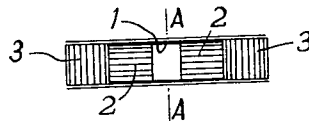


Fig. 2.

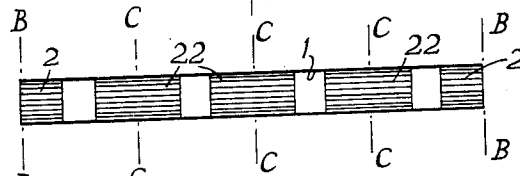


Fig. 3.

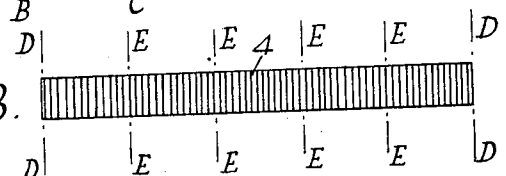


Fig. 4.

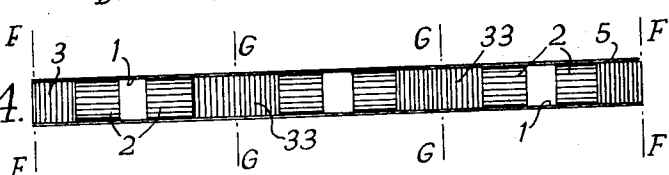


Fig. 5.

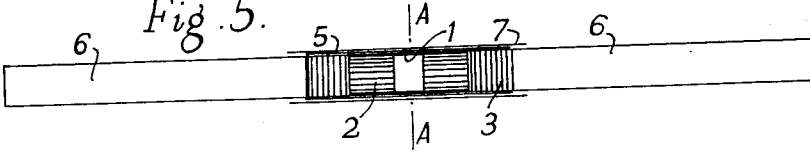


Fig. 6.

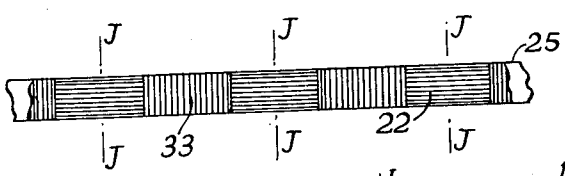
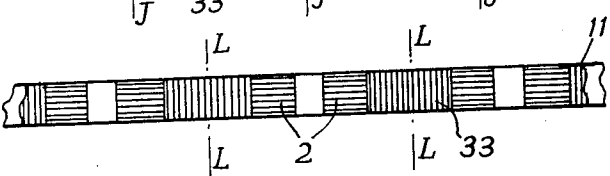


Fig. 7.



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3,052,164

MANUFACTURE OF MOUTHPIECE CIGARETTES
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Filed Oct. 5, 1959, Ser. No. 844,326

Claims priority, application Great Britain Oct. 9, 1958
1 Claim. (Cl. 93—1)

This invention concerns improvements in the manu-
facture of mouthpiece cigarettes.

It is known to provide cigarettes with mouthpieces
comprising a tube of stiff paper and containing filter
material with the outer end of the tube extending some-
what beyond the outer end of the filter so that the con-
sumer does not contact the filter itself. Such mouth-
pieces are conveniently termed "hollow mouthpieces."
It is also known to provide cigarettes with mouthpieces
containing two or more portions of differing filter ma-
terials arranged in tandem, such mouthpieces being
known as composite mouthpieces. An object of the in-
vention is to provide a method of making hollow mouth-
pieces which contain two or more portions of filter ma-
terial arranged in tandem, and cigarettes comprising such
mouthpieces.

The pieces of filter material are commonly termed
"stubs" so a mouthpiece made according to the invention
will be a composite hollow mouthpiece containing at least
two stubs in tandem.

Various kinds of machinery are available, suitable or
adaptable, for making any of the products outlined above,
and the present invention is therefore confined to the
basic methods, the actual performance of the methods
being according to the particular kind of machinery used.
Generally speaking stubs and mouthpieces are made by
continuous rod methods and mouthpiece cigarettes are
made by continuous rod or rolling methods, though some
mouthpieces are also rolled. It is also possible to make
the various products described herein by inserting some
components into tubes.

In the manufacture of these products there are diffi-
culties in mechanically handling such things as stubs
or mouthpieces if they are less in length than a certain
minimum and the common practice is to feed rod-like
material for such components to machines in multiple
lengths, that is lengths long enough to be divided into a
number of double-length components, and to sub-divide
these multiple lengths into double lengths for assembly
with suitable pieces of cigarette rod, whereafter the as-
sembled items are again sub-divided to produce separate
mouthpiece cigarettes.

The purpose of providing composite mouthpieces is to
secure better filtering and the stub nearer the consumer's
mouth must obviously be of a material which is attractive
and acceptable to a consumer, for example, crepe paper.
This stub may be termed the outer stub.

The inner stub may be of any kind and thus various
chemical or chemically treated stubs which would be
quite unacceptable alone may be employed.

In its broadest aspect the invention comprises a method
of making a composite hollow mouthpiece as defined
above comprising the following steps:

(1) Enclosing a number of groups of components each
group comprising a double-length or center inner filter
abutted at each end by a single-length outer filter in a
paper tube in which the neighbouring outer filters are
spaced apart and cutting the rod (e.g. a continuous rod)
thus formed into suitable lengths for machine feeding
by bisecting double-length inner filters to provide single-
length inner filters at each end of said suitable lengths,
e.g. multiple-length rods.

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(2) Sub-dividing such suitable lengths to provide
double-length composite hollow mouthpieces.

The time at which step 2 takes place is a matter of ex-
pediency. A double-length composite hollow mouthpiece
is practically long enough for feeding from a hopper.
On the other hand if a continuous rod is to be cut into
such short lengths the cut-off of the machine has a great
deal of work to do and collection of short pieces may
be difficult. In most cases therefore it is better to cut
fairly long multiple-length rods and sub-divide them when
feeding from a hopper.

The components referred to in step 1 may be made by
two different methods, as recited later, but in either
method the tube enclosing the single-length outer stubs
must be of stiff paper, or thin card, because the product
is eventually cut through by bisecting the spaces to pro-
vide the desired hollow portion of the mouthpiece.

Further according to the invention there is provided
a method of making a composite hollow mouthpiece as
defined above comprising the following steps:

(1) Enclosing a number of double-length inner stubs
alternately with double-length outer stubs in abutting re-
lationship in a paper tube, cutting the resulting rod (e.g.
a continuous rod) thus formed into suitable lengths for
machine feeding by bisecting double-length inner filters
to provide single-length inner filters at each end of said
suitable lengths (e.g. multiple-length rods).

(2) Sub-dividing such suitable lengths to provide pieces
consisting of two single-length outer filters with a double-
length inner filter between and abutting them, and en-
closing said pieces in a tube of stiff paper and spaced
apart by twice the distance by which the tube is to extend
beyond the outer end of the stub in the finished cigarette
and dividing the rod thus formed (e.g. a continuous rod)
into suitable lengths for machine feeding by cutting
through double-length inner stubs to bisect them and pro-
vide single-length outer stubs at each end of such suitable
lengths (e.g. multiple-length rods).

(3) Sub-dividing said suitable lengths to provide
double-length composite hollow mouthpieces.

Similar remarks apply to step 3 as to step 2 of the
method first recited and as set out in the first paragraph
following said step 2.

Further according to the invention there is provided a
preferred method of making a composite hollow mouth-
piece as defined above comprising the following steps:

(1) Enclosing a number of double-length outer stubs
in a tube of stiff paper and spaced apart by twice the
distance by which the tube is to extend beyond the outer
end of the outer stub in the finished cigarette and cutting
the rod (e.g. a continuous rod) thus formed into suitable
lengths for machine feeding by bisecting double-length
stubs to provide single-length stubs at each end of such
suitable lengths (e.g. multiple-length rods).

(2) Sub-dividing each said length by bisecting any
remaining double-length outer stubs to produce double-
length hollow mouthpieces having a single-length stub
at each end.

(3) Assembling such double-length hollow mouth-
pieces with double-length inner stubs to form a composite
rod joined by outer wrapping material such as a con-
tinuous paper wrapper to form, for example, a con-
tinuous rod.

(4) Dividing said composite rod to produce multiple-
length rods suitable for feeding to a machine, by bisect-
ing two double-length inner stubs to provide single-length
inner stubs at the ends of such multiple-length rods.

(5) Sub-dividing each multiple-length by bisecting any
remaining double-length inner stubs to produce double
double-length composite hollow mouthpieces.

As regards step 2 the remarks in the first paragraph

following step 2 in the method first recited equally apply here and similarly step 5 above can take place simultaneously with step 4, or during feeding to a machine for making mouthpiece cigarettes.

Further the invention comprises a method of making mouthpiece cigarettes having composite hollow mouthpieces, comprising the following steps:

(1) Feeding the said multiple-length rods produced by any of the foregoing methods to an assembly machine and dividing them to produce double-length composite hollow mouthpieces or, alternatively, feeding the double-length composite hollow mouthpieces to said machine.

(2) Assembling such double-length composite mouthpieces with pieces of cigarette rod to form a composite mouthpiece cigarette rod and joining up the components by wrapping material (e.g. cork tip material) around them and securing the wrapping material to unite the components and thereafter severing the composite rod by bisecting the double-length composite mouthpieces and, where necessary, the pieces of cigarette rod.

Regarding step 2, if assembly is done by rolling, only the mouthpiece part needs bisecting but if a continuous rod is made then successive cuts take place at the mouthpiece part and in the middle of a double-length piece of cigarette rod.

The methods recited above cater for normal production methods where the last operation is the division of a double-length mouthpiece into two single mouthpieces after mouthpieces material has been joined to cigarette rod material but the methods of making the mouthpieces can obviously include a further step of sub-dividing a double-length mouthpiece for those cases where mouthpieces are pushed into paper tubes which are filled with tobacco at some convenient stage in the manufacture.

Two ways of carrying the invention into effect will be described with reference to the accompanying drawings in which FIGURES 1 to 5 show one way and FIGURES 6 and 7 show another way.

Referring to the drawings:

FIGURE 1 is a section of a double-length composite hollow mouthpiece;

FIGURE 2 is a section of a multiple-length rod comprising double-length outer stubs spaced apart and enclosed in a stiff paper tube having single-length outer stubs at its ends;

FIGURE 3 is a section of a multiple-length rod to be cut to produce double-length inner stubs, said rod normally comprising a thin paper wrapper;

FIGURE 4 is a section of a multiple-length composite hollow mouthpiece rod ready for feeding to an assembling machine of any kind;

FIGURE 5 is a section showing a double-length composite hollow mouthpiece of a kind shown in FIGURE 1 between two single-length pieces of cigarette rod and united thereto by a wrapper such as a cork tip;

FIGURE 6 shows a number of double-length inner and outer stubs joined in abutting relationship and enclosed in a thin paper tube to form a rod; and

FIGURE 7 shows a number of pieces cut from the rod of FIGURE 6 and spaced apart in a tube of stiff paper.

Referring first to FIGURES 1 to 5, the views are substantially to scale and considering FIGURE 1 it will be understood that it would be virtually impossible to handle the various short stubs shown in an automatic machine and that to produce an article of the kind shown special methods are necessary. In the FIGURE 1 is a tube formed of stiff paper and 2 are single-length stubs which, as may be seen from FIGURE 5, will constitute outer stubs in the finished mouthpiece cigarette. 3 are single-length stubs which will constitute inner stubs in the finished mouthpiece cigarette. After assembly with pieces of cigarette rod, as related later, the component of FIGURE 1 is bisected on the broken line A—A.

While the component shown in FIGURE 1 is almost long enough for satisfactory feeding from a hopper, or

like device, it is preferable for a number of reasons to use a multiple-length as shown in FIGURE 4 and cut it into pieces, like FIGURE 1, as it passes from the hopper to the assembly position and the production of such a multiple-length which is effected in several stages will now be described with reference to FIGURES 2 to 4.

Referring first to FIGURE 2 double-length outer stubs 22 are arranged as shown and spaced apart by twice the distance by which the paper tube is to extend beyond the outer end of the outer stub in the finished cigarette. The spaced stubs are enclosed in a stiff paper tube 1.

Normally such an article will be made by a continuous rod process and the rod is cut on the lines B—B to produce the multiple-length. This length is sub-divided at any convenient stage in the manufacture by bisecting each double-length stub 22 on the lines C—C to produce double-length hollow mouthpieces.

Referring now to FIGURE 3 a multiple-length of inner stub material is shown, normally produced by a continuous rod process and provided with an outer wrapper 4 of thin paper. The continuous rod is severed on the lines D—D and the length is sub-divided at any convenient stage in the manufacture on the lines E—E to produce double-length inner stubs, 33, FIGURE 4.

Usually multiple-lengths as shown in FIGURES 2 and 3 will be fed from hoppers to a machine for making the composite rod shown in FIGURE 4 and the sub-division is then done in transit.

In FIGURE 4 single-length stubs bear the same reference as in FIGURE 1 while double-length inner stubs bear the same references 33. It will be seen that double-length inner stubs 33 are placed in abutting relationship with the stubs 2 of the double-length hollow mouthpiece and the parts are joined by an outer wrapper 5 of thin paper. As the composite rod shown will be most usually made by a continuous rod process, the continuous rod will be cut on the lines F—F to produce the multiple length. Thus the cutting operation will bisect double-length inner stubs to produce the single-length inner stubs 3 at the end of the multiple-length.

This multiple-length is subdivided, for example in feeding from a hopper to an assembly device, the length being cut on the lines G—G to produce three items like that shown in FIGURE 1 and each such item is placed between two pieces of cigarette rod 6, FIGURE 5, and the parts joined by a short wrapper 7, usually a cork tip, whereafter the product is bisected on line A—A and two composite hollow mouthpiece cigarettes are produced.

This method of assembly is the normal modern method but continuous rod assembly is obvious from the figure, simply requiring double-length cigarette rods which are subsequently bisected, and if it is desired to make a short rod several times the length of that shown in FIGURE 5 double-length cigarette rods may be employed for the inner cigarettes and bisected after assembly.

Another method of making the mouthpiece is shown in FIGURES 6 and 7.

In FIGURE 6 double-length inner stubs 33 and double-length outer stubs 22 are assembled in abutting relationship and joined to form a rod, as by wrapping the assembly in a thin paper wrapper 25. The rod, which may be a continuous rod, is cut on the lines J, FIGURE 6, to produce items consisting of a double-length inner stub with a single-length outer stub at each end. These items are then enclosed in a tube 11, FIGURE 7, of stiff paper with spaces as before and cut, at some suitable stage, on the lines L to produce the articles shown in FIGURE 1. The thin paper wrapper 25 is not shown in FIGURE 7 but its presence is obvious from FIGURE 6. This method requires more stiff paper than the one first described and this may be commercially undesirable.

While mouthpieces containing only two stubs have been described the extension to three stub mouthpieces can

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be made from a study of the specification. Three stubs are probably the maximum ever likely to be used.

What I claim as my invention and desire to secure by Letters Patent is:

A method of making a double-length composite hollow mouthpiece comprising the steps of (1) enclosing separate groups of abutting components of mouthpiece material within a paper tube to form a rod, each group containing at least three components and containing only an odd number of components, one of said components in each group being located midway between the two endmost components of the group and constituting the center component of the group, each group being separated from the next adjacent group by a hollow space, and the components immediately adjacent the hollow spaces being of the same kind of mouthpiece material, and (2) divid-

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ing the rod so formed by cutting through only the center component of each group to form double-length composite hollow mouthpieces.

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