March 17, 1931. N. M. HOPKINS 1,796,522

METHOD OF MANUFACTURING CIGARETTES

Filed March 14, 1925 2 Sheets-Sheet 1

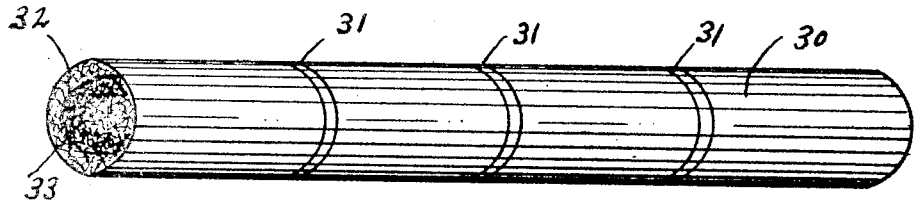


Fig 1.

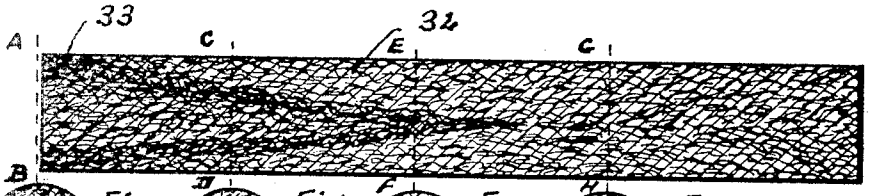


Fig 2.

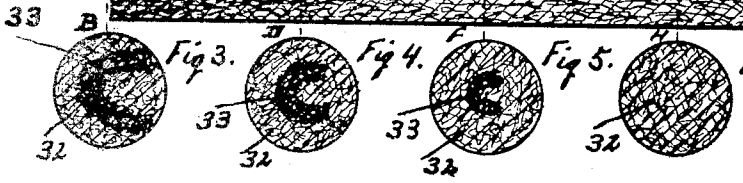


Fig 3. Fig 4. Fig 5. Fig 6.

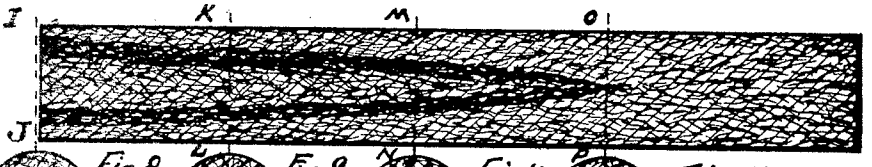


Fig 7.

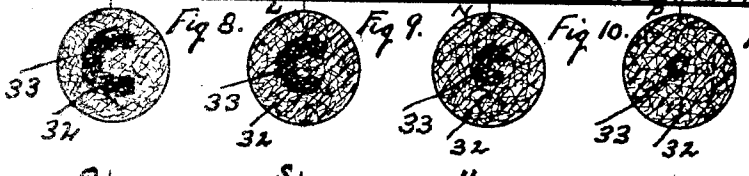


Fig 8. Fig 9. Fig 10. Fig 11.

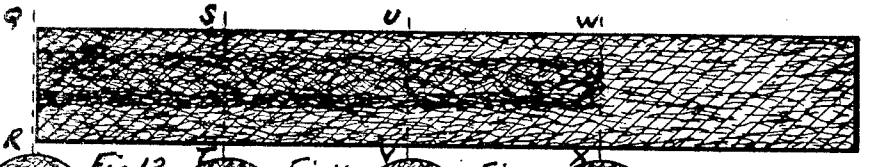


Fig 12.

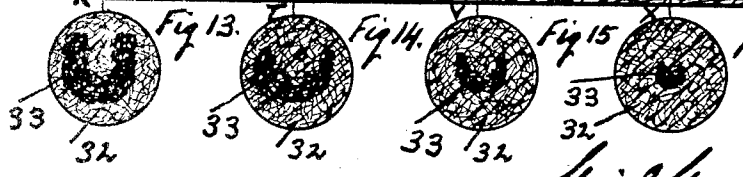


Fig 13. Fig 14. Fig 15. Fig 16.

Merril Monroe Hopkins

INVENTOR.

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METHOD OF MANUFACTURING CIGARETTES

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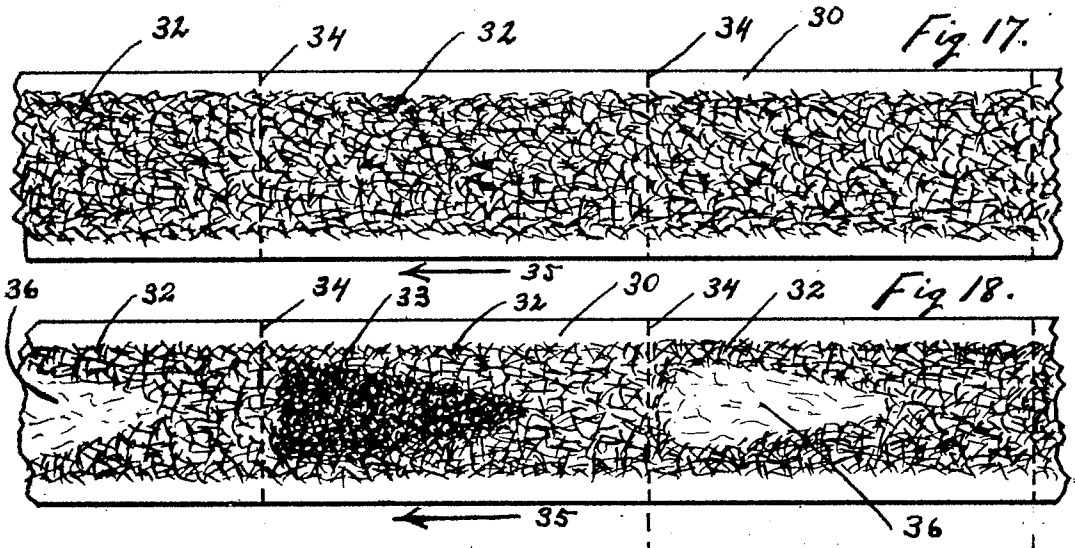


Fig. 17.

Fig 18.

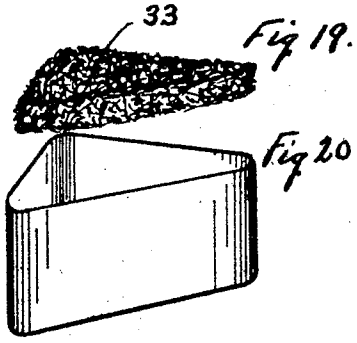


Fig 19.

Fig 20

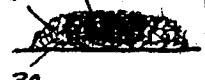


Fig.22.



Fig.23.

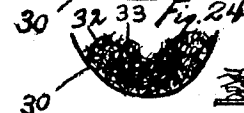


Fig.24.

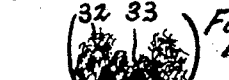


Fig.25.



Fig.26.



Fig.27.



Fig.28.

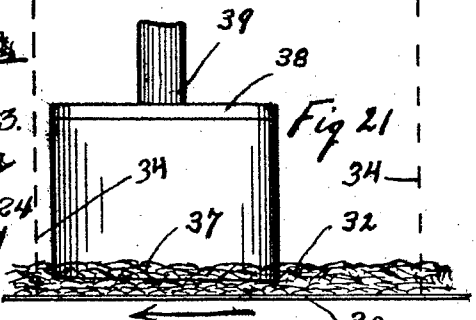
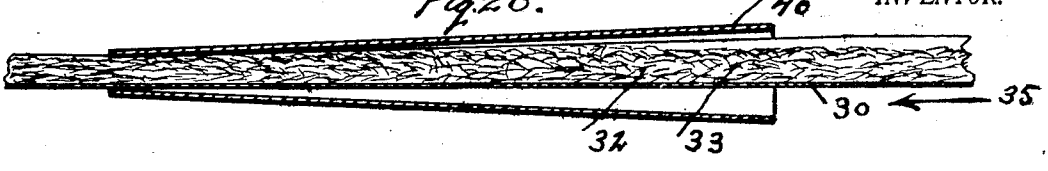


Fig 21

Neil Monroe Hopkins

INVENTOR.



Patented Mar. 17, 1931 1,796,522

UNITED STATES PATENT OFFICE

NEVIL MONROE HOPKINS, OF NEW YORK, N. Y.

METHOD OF MANUFACTURING CIGARETTES

Application filed March 14, 1925. Serial No. 15,588.

This invention relates to novel methods of making cigarettes, and particularly to improvements in methods of producing a cigarette which yields smoke of uniform quality throughout its combustion due to the distribution in the tobacco of the nicotine and other volatiles. It is a scientific fact that an ordinary cigarette made up of all of one kind of tobacco, grows stronger as it is smoked, because the tobacco lying between the burning end and the lips of the smoker in the cigarette is successively augmented in strength as the cigarette is intermittently "puffed" or "drawn upon" by the smoker due to the condensation of volatiles from the portion of the cigarette in the fire zone, and it is an object of my invention to provide a method to so construct a cigarette as to eliminate, or to reduce as much as possible, this increase in strength due to condensed volatiles as the cigarette is smoked.

In a co-pending application, Serial #756,732, filed December 18, 1924, "method of improving cigarettes, cigars and pipe cartridges", and in a co-pending application, Serial #756,733, filed December 18, 1924, "cigarettes, cigars or pipe cartridges", and in a co-pending application, Serial #1,192, (series of 1925) filed January 8, 1925, "machines for treating cigarettes, cigars and pipe cartridges", and in a patent application filed simultaneously with the present application of even date, "improvements in cigars", Ser. No. 15,589. I discuss at length the theory, together with the chemistry upon which my novel principles depend.

Referring to the accompanying drawing, forming a part of this specification, in which like numerals designate like parts in all the views, Figure 1 is an elevational view of one of my cigarettes. Figure 2 is a longitudinal section through this cigarette. Figure 3 is an end view of the left hand end of the cigarette as indicated by the dotted line A. B. Figure 4 is a transverse section through this cigarette at a point immediately above, along the dotted line C. D. Figure 5 is another transverse section through this cigarette immediately above, along the dotted line E. F., and Figure 6 is another transverse section through this cigarette immediately above, along the dotted line G. H. Figure 7 is a longitudinal section through this cigarette showing a prolongation of the compound filler, and Figure 8 is an end view of the end of this cigarette, as indicated by the dotted line I. J., and Figure 9 is another transverse section through this cigarette immediately above, along the dotted line K. L., and Figure 10 is another transverse section through this cigarette immediately above, along the dotted line M. N., and Figure 11 is still another transverse section through this cigarette immediately above, along the dotted line O. P. Figure 12 is a longitudinal view through this cigarette, showing it turned through an angle of 90 degrees from the longitudinal section shown in Figure 7, and Figure 13 is another end view of this cigarette above, along the dotted line Q. R., and Figure 14 is another transverse section through this cigarette above, along the dotted line S. T., and Figure 15 is still another transverse section through this cigarette above, along the dotted line U. V., and Figure 16 is still another transverse section through this cigarette along the dotted line W. X. On the second sheet of drawings, Figure 17 is a top view looking down on a band of cigarette paper containing a spread or layer of tobacco. Figure 18 is another top view looking down on a band of cigarette paper with a layer or spread of tobacco with certain portions of the tobacco removed and with a substitution of one kind of tobacco for another thereon. Figure 19 is a perspective view of the small wedge-shaped mass of tobacco. Figure 20 is a form or cutting-out device for forming wedge-shaped masses of tobacco from a layer of tobacco or for depositing wedge-shaped masses of tobacco upon the cigarette paper band or upon the spread or layer of tobacco. Figure 21 is likewise a form for cutting out or depositing a like wedge-shaped mass of tobacco, or tobacco in loose form, or a finer cut or powdered form. Figure 22 is an end view of the paper band containing a layer or spread of tobacco in

section. Figure 23 is also an end view of the band of cigarette paper showing tobacco in section but in the initial stage of being rolled. Figure 24 is a like end view a little further rolled up and Figure 25 is still another end view still further rolled up and Figure 26 is still another end view further rolled and Figure 27 is still another end view, the rolling up being completed. Figure 28 is a section through a forming-cone, similar to those used for forming cigarettes from the band of cigarette paper spread with a layer of tobacco, such as made with any standard automatic cigarette-making machine.

With further reference to Figure 1, 30 is the paper wrapper of the cigarette, and 31—31—31 are bands printed or otherwise marked upon the cigarette paper, as indicators of its interior construction. 32 designates the exposed end of that portion of the filler made of mild tobacco, and 33 is the exposed end of the portion of stronger tobacco. With further reference to Figure 2, the mild tobacco is again shown at 32 and the stronger tobacco at 33 in the wedge-shaped or tapering mass, extended about half way throughout the length of the cigarette. With further reference to Figure 3, the stronger tobacco is shown in its bent or curved shape at 33, surrounded by a milder tobacco 32.

It will be seen on reference to Figs. 3 to 6 inclusive, that the stronger tobacco is in the form of a part of a cone and the quantity of stronger tobacco gradually diminishes in amount from the end where this tobacco is exposed toward the other end of the cigarette where only mild tobacco is present.

In Figs. 7 to 11 inclusive, there is shown a modified form of the cigarette in which a greater quantity of stronger tobacco is used, this tobacco extending through more than half the length of the cigarette. In Figs. 12 to 16 inclusive, the cigarette shown is similar to that illustrated in Fig. 7, but a greater amount of stronger tobacco is employed and it is present in a substantially uniform amount along the cigarette, instead of diminishing, as is the case in the forms previously described.

Referring to Figure 17, 30 is the cigarette paper or wrapper, spread out in band form, with a spread or layer thereon of mild tobacco 32. The dotted lines 34—34 indicate the sectional length of cigarettes and indicate where the paper is to be cut off, either by hand shears or by a rotating cutter, used in all standard forms of automatic cigarette-making machinery. The arrow 35 indicates the direction of movement of the band of paper carrying the spread or layer of tobacco intended for the manufacture of cigarettes.

The band is shown in Fig. 18 at a later stage in the manufacture of the new cigarettes. 36—36 show wedge-shaped gaps in the milder tobacco 32 where some of it has been removed, showing the cigarette paper exposed to view, and 33 shows a wedge-shaped mass of stronger tobacco which has been placed in one of the vacant gaps 36 resulting from the removal of a wedge-shaped mass of the milder tobacco 32.

With further reference to Figure 19 a wedge-shaped mass of stronger tobacco 33 is shown adapted to fit into one of the wedge-shaped recesses 36 in the milder tobacco 32.

With further reference to Figure 20 where a wedge-shaped tobacco-forming or tobacco depositing device is shown, and with further reference to Figure 21, a like wedge-shaped metal box device is depicted, with its lower edge 37 shown imbedded in the milder tobacco 32, on the paper cigarette band 30, moving in the direction of the arrow 35. This wedge-shaped metal box device 21 has a cover 38 hermetically closing the upper portion thereof, equipped with a pipe 39 leading into the interior thereof, and by means of which an air pressure or a vacuum may be produced at will, facilitating the removal of a wedge-shaped mass of tobacco from the layer of tobacco upon the paper cigarette band 30—or facilitating the depositing of a wedge-shaped mass of tobacco upon the moving paper band 30 or upon the mild tobacco 32 which it covers.

The paper band 30 is caused to move in the direction of the arrow 35 manually or by belt and mechanism, carrying a layer of mild tobacco 32 as depicted in Figure 21. I then deposit thereon wedge-shaped masses of stronger tobacco at length intervals, such length intervals being the lengths of standard cigarettes as indicated by the dotted lines 34—34, by feeding tobacco under gentle air pressure down into and through the pipe 39. I may feed a stronger, very fine cut, or even powdered tobacco, into the wedge-shaped box shown in Figure 21 directly on to, and between the fibres of the mild tobacco 32, without removing any portion of said mild tobacco.

With further reference to Figure 22, an end view of the cigarette paper is shown at 30, with the milder tobacco at 32 and the stronger tobacco at 33.

With further reference to Figure 23 a like end view of the cigarette paper shown at 30 with a stronger tobacco 33 and the milder tobacco 32, shown in the initial stage of being bent upward by drawing through a ring or large end of a forming cone well known to cigarette makers.

With further reference to Figure 24, a like end view of the paper is again shown at 30 with the stronger tobacco at 33 and the milder tobacco at 32 bent up in the process

of forming to a greater extent, and Figures 25, 26 and 27 also show end views of the cigarette paper 30 bent up in increasing degree over the included tobaccos 33 and 32 and until the cigarette is formed.

With further reference to Figure 28, 40 is a metal cone used in many standard forms of automatic cigarette making machinery, with the paper band 30, advancing in the direction of the arrow 35 and containing the tobaccos 33 and 32. It is understood of course that the paper band is supported upon and is driven by a conveyor belt in practice not shown here for the sake of clearness.

Having described the various parts and combination of parts of my new cigarette, my method of producing it is as follows:—

A spread of mild tobacco approximately ¼ inch thick is laid upon the paper, sifted on by machinery or sprinkled on by hand, and at intervals of the length of the standard cigarette, substantially wedge-shaped masses of tobacco are removed by a metal form shown in Figure 21 by aid of a vacuum or partial vacuum, and stronger tobacco in wedge-shaped masses shown in Figure 19 are successively placed in these gaps, and the cigarette paper is either drawn manually or by mechanism through the cone depicted in Figure 28 and pasted, as it emerges from the small end of the cone 40 and either cut off by hand shears, or by a rotating cutter used in all standard cigarette making machines. I may also make my new compound cigarette in the simpler way as already described by simply depositing at intervals, some finely cut, or powdered stronger tobacco, on to and between the fibres of the milder tobacco, in thin wedge-shaped masses near the end adapted to be lighted, or I may deposit flavor in any form of material or substance on to and between the fibres of the milder tobacco 32 at regularly spaced intervals, as it moves along on the paper carrier. I have found it to be a simple and efficient way to produre economically my compound cigarettes to sprinkle mild tobacco uniformly upon the moving band of cigarette paper, and then to plant at regularly spaced intervals, fine cut or powdered tobacco of a stronger kind, to draw the paper "rope" as it is thus called by cigarette manufacturers through the forming cone, and after pasting and drying the seam to cut off the "rope" into cigarettes, the rotating knife or shears employed, cutting off the paper at positions indicated by the dotted lines 34—34—34.

By carrying out this method either manually or mechanically, I am enabled to produce a cigarette with a longitudinal section as depicted in Figures 1, 2, 7 and 12 and with transverse cross sections as shown in Figures 3 to 16 inclusive.

I may unite the seam by pasting or crimping and I may paste upon the band tips of cork or other material, or I may in the place of the cork or other tip, print the name or a design upon the paper, upon the end remote from the mixed tobaccos or the tobacco carrying the flavoring material.

Having described my novel compound cigarette and its method of manufacture I claim—

1. The method of manufacturing cigarettes consisting of sprinkling tobacco upon a band of paper, depositing a differently flavored tobacco thereon at spaced intervals, and forming a "rope" by drawing said paper and the tobacco thereon through a forming device, uniting the seam and cutting off the "rope" into cigarettes.

2. The method of manufacturing cigarettes comprising placing tobacco upon a band of paper, removal of a part of said tobacco at regularly spaced intervals, depositing a different kind of tobacco into the voids resulting from the removal of part of the tobacco, and forming a "rope" by drawing said paper and the said tobaccos through a forming device, uniting the seam and severing the "rope" into cigarettes.

3. The method of forming cigarettes consisting of sprinkling tobacco upon a printed band of paper, the removal of a portion of said tobacco in wedge-shaped masses or substantially wedge-shaped masses, at regularly spaced intervals, the depositing of a tobacco of a different or stronger kind in wedge-shaped or substantially wedge-shape masses into the voids resulting from the removal of a part of the tobacco, and the forming of a cigarette "rope" by drawing said paper and the said tobaccos through a forming device, the uniting of the seam by pasting or crimping, and the cutting off of the rope into cigarettes.

4. A cigarette rope comprising a wrapper and a tobacco filler containing, at regular intervals lengthwise of the wrapper, quantities of tobacco of a stronger character than the remainder of the filler.

5. A method of manufacturing cigarettes, which comprises continuously depositing tobacco upon a band of paper, depositing at spaced points lengthwise of the band of paper quantities of tobacco of a different character from that deposited by the continuous action so as to provide a uniform quantity of tobacco, folding the paper to enclose the tobacco deposited therein, uniting the the overlapping edges of the paper to form a seam, and severing the paper into cigarettes of the desired length.

6. A method of manufacturing cigarettes, which comprises continuously depositing tobacco upon a moving paper band, depositing upon the paper band separate quantities of tobacco of a different character

from that first deposited so as to provide a uniform quantity of tobacco, the last-named tobacco being placed on the band at regularly spaced intervals, folding the band to enclose the tobacco deposited thereon, uniting the edges of the paper to form a seam, and severing the paper with the tobacco inside it into cigarette lengths, the lines of severance occurring at one end of each of the masses of stronger tobacco within the folded band.

7. The method of manufacturing cigarettes comprising continuously depositing tobacco upon a band of paper of indefinite length, depositing a different kind of tobacco thereon at spaced points lengthwise of the band, and forming the band with the tobacco therein into the shape of a tube of paper with tobacco inside it.

Signed at New York city, in the county of New York and State of New York, this 13th day of March, A. D. 1925.

NEVIL MONROE HOPKINS.