

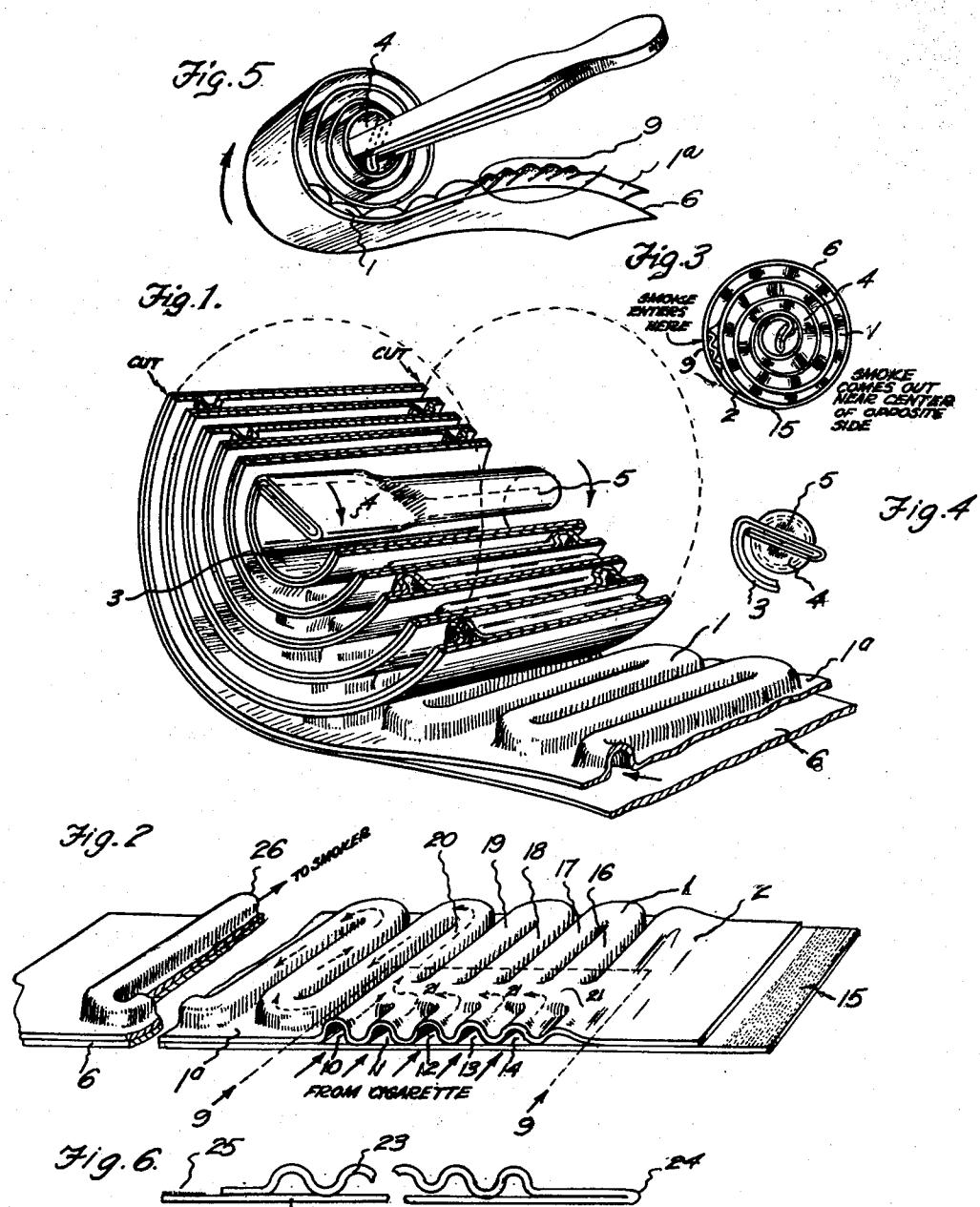
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S. R. WELLBORN

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CIGARETTE FILTER TIP

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INVENTOR.  
SARAH R. WELLBORN

BY  
*Sarah R. Wellborn*  
ATTY.

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## CIGARETTE FILTER TIP

Starnes R. Wellborn, Nashville, Tenn.

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5 Claims. (Cl. 131—10)

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This invention relates to a filter tip for cigarettes and has for one of its objects the production of a filter tip which will produce a cooler smoke involving the virtues of a long cigarette holder, while at the same time avoiding the inconvenience of using such a cumbersome device.

A further object of this invention is the production of a filter tip which will reduce to a minimum tobacco stain upon the smoker's teeth and prevent tobacco particles from contacting the teeth of the smoker.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawing:

Figure 1 is a perspective view of the tip, with the top half of the roll cut diagonally away through the center, for the purpose of illustrating the improved center closure.

Figure 2 is a perspective view of a portion of the corrugated strip, and the companion strip, located at the end of the roll and at the circumference.

Figure 3 is an end view of the completely rolled tip illustrating the circuitous smoke passage and center closure, the end which lies adjacent the tobacco in the cigarette being shown, and the strips of paper being indicated by a single line to avoid cumbersome illustration.

Figure 4 is a fragmentary end elevational view of the folded portion which provides the center closure.

Figure 5 is a perspective view of the tip in the process of being rolled by means of tweezers, or other instrument, each layer of paper being indicated by a single line.

Figure 6 is an edge elevational view of a modified form wherein the outer and the inner corrugated strips are formed from one continuous strip of paper.

By referring to the drawing, it will be seen that 1 designates the transverse corrugations which extend in a continuous uninterrupted pattern throughout the principal portion of the strip 1<sup>a</sup>, but gradually diminished at both ends as at 2 and 3 to the same flatness as the companion strip 6. (See Figures 2 and 3 of the drawing.) This is necessary so that no direct air passage will exist at the ends of the strips.

As shown in Figures 1 and 4, the centrally located flat end 3 of the corrugated strip and the companion strip are provided with about one half of the width folded flat once over as at 4. The remaining width of that portion which has not been folded will naturally assume a round shape

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in cross section as at 5, upon which the strips of material, paper and the like, will roll. The flat fold 4 of the core, formed by portions 4 and 5, will block the direct passage of air through the center of the roll, thus forming a self-contained closure of the tip.

As shown in Figure 4, the combined strips which form the closure at 4, fit flat one against the other at the start of the process of rolling. Because of the flattened portion 4 of the core being of greater width than the diameter of the rounded portion 5, it will be found upon completion of the roll, that the flat portion 4 will be compressed in such a manner to form a bowed or substantially S-shaped formation—note Figure 3.

If desired an adhesive material 15 may be used and applied to the inner surfaces of the flat fold 4 to secure the faces together.

As shown in Figure 2, and beginning at the line of fragmentation, the transverse corrugation 1, which is of a serpentine formation, travels in continuous approach to within the terminal area indicated by the dotted line 9—9. The terminal area is located adjacent the tobacco when rolled within a cigarette and is located near the periphery of the roll as shown in Figure 3. By following the arrows shown in dotted lines in Figure 2, through the corrugations, the open air and smoke passages may be traced. Smoke and air travel along the line of least resistance and therefore, normally the smoke will only be drawn into the corrugated passageway through the first entrance 10. Should however this entrance become ineffective because of its being clogged with tobacco muck or tobacco particles, the second entrance 11 will then become the most direct passageway and will perform the same function as did the first passageway or entrance 10. Should the second entrance 11 become ineffective, the third entrance 12 will then perform the same function, and so on, using as many such entrances 13 and 14 in the terminal areas as desired, with the eventual diminishing of the corrugations to the end of the strip. The extreme outer end of the companion strip will hold the roll in firm rolled shape by use of an adhesive at 15 as shown in Figure 3.

From the foregoing description it should be noted that I have produced a filter tip for cigarettes having a self-contained center closure within the roll of corrugated paper, together with an intermediate companion strip of flat paper, and wherein the center closure comprises a component part of the two paper strips. Furthermore, it should be noted that an efficient terminal

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area of the circuitous passaged paper strip has been provided, for the purpose of insuring an unobstructed passage of cigarette smoke, especially when the corrugations are made very small in size.

It will be noted further by considering Figure 2, that the passages 16 to 20 are provided with communicating passages 21 intermediate the ends thereof to provide alternate smoke inlets should one inlet become stopped, and at the same time providing the continuous passage or communication between the corrugations at a point inset from the entrance openings 10 to 14 inclusive.

As shown in Figure 6, the outer strip 22 and the inner corrugated strip 23 are formed from a continuous strip of paper being folded back upon themselves as at 24. The folded end as at 24 is the end which forms the self-contained center closure, and the sealing adhesive 25 is applied to the opposite end similar to the adhesive 15 shown in Figure 2.

By noting Figure 2, the direction of travel of the smoke should be understood, the outlet passage 26 leading to the smoker's mouth indicated at one end of the strip and the inlet passages from the cigarette being indicated 10 to 14 inclusive.

The present invention is an improvement upon my previous application Serial Number 573,553, filed January 19, 1945, now Patent No. 2,462,446, and relating to a Built-in circuitous smoke passage.

What is claimed is:

1. A cigarette filter tip comprising an outer sheet of material and an inner sheet of material in the form of a roll, one sheet having serpentine circuitous corrugations extending substantially throughout the length of the sheet to provide a lengthy smoke passage having a smoke inlet passage near the periphery of the tip leading from a cigarette, and a smoke outlet passage near the center of the tip leading to the mouth of the smoker, the inner ends of the sheets of said roll providing a central core having a closed end to provide a self-contained center closure.

2. A cigarette filter tip comprising an outer sheet of material and an inner sheet of material rolled together, one sheet having serpentine circuitous corrugations extending substantially throughout the length of the sheet to provide a lengthy smoke passage having a smoke inlet passage near the periphery of the tip leading from a cigarette, and a smoke outlet passage near the center of the tip leading to the mouth of the smoker, the inner ends of the sheets when rolled providing a central core having a folded com-

pressed and flattened end to provide a self-contained center closure.

3. A cigarette filter tip comprising an outer sheet of material and an integral inner sheet of material, the inner sheet having serpentine circuitous corrugations extending transversely thereof and substantially throughout the length of the sheet to provide a lengthy smoke passage having a smoke outlet passage near the center of the tip, and a series of the corrugations near one end of the last mentioned sheet having open ends providing a plurality of smoke inlet passages adjacent a cigarette and located near the periphery of the tip, said last mentioned series of corrugations having communicating passages inset from the open ends to insure a free intake of smoke through the corrugations should one of the said openings become clogged.

4. A cigarette filter tip comprising an outer sheet of material and an integral inner sheet of material in the form of a roll, one sheet having serpentine circuitous corrugations extending substantially throughout the length of the sheet to provide a lengthy smoke passage having a smoke inlet passage near the periphery of the tip leading from a cigarette, and a smoke outlet passage near the center of the tip leading to the mouth of the smoker, the inner ends of the sheets when rolled providing a central core having a flattened end to provide a self-contained center closure.

5. A cigarette filter tip comprising a sheet of material in the form of a roll having an inner and an outer end, said sheet having a lengthy serpentine circuitous smoke passage extending substantially throughout the length of the sheet, said sheet also having a smoke inlet passage leading from the cigarette and communicating with the circuitous passage, and having a smoke outlet passage leading to the mouth of the smoker and communicating with the circuitous passage, the inner end of the sheet of the roll providing a central core having a closed end to provide a self-contained closure.

STARNES R. WELLBORN.

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The following references are of record in the file of this patent:

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