Dec. 24, 1929. K. N. KNUDSEN 1,740,606

CIGARETTE PERFORATING DEVICE

Filed April 18, 1927

Fig. 1.

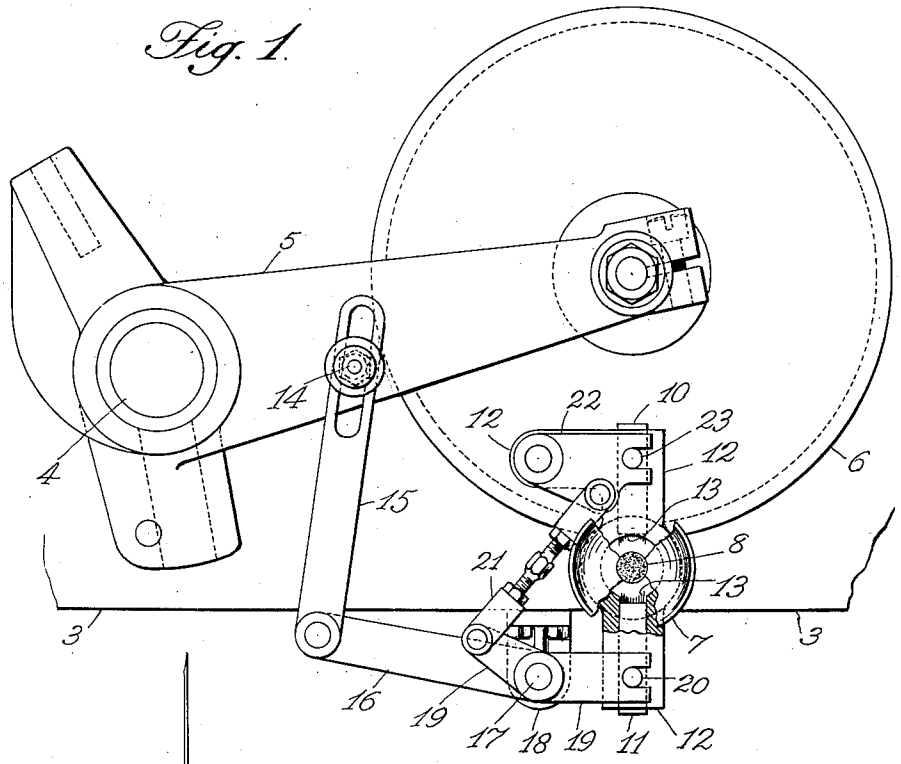


Fig. 2.

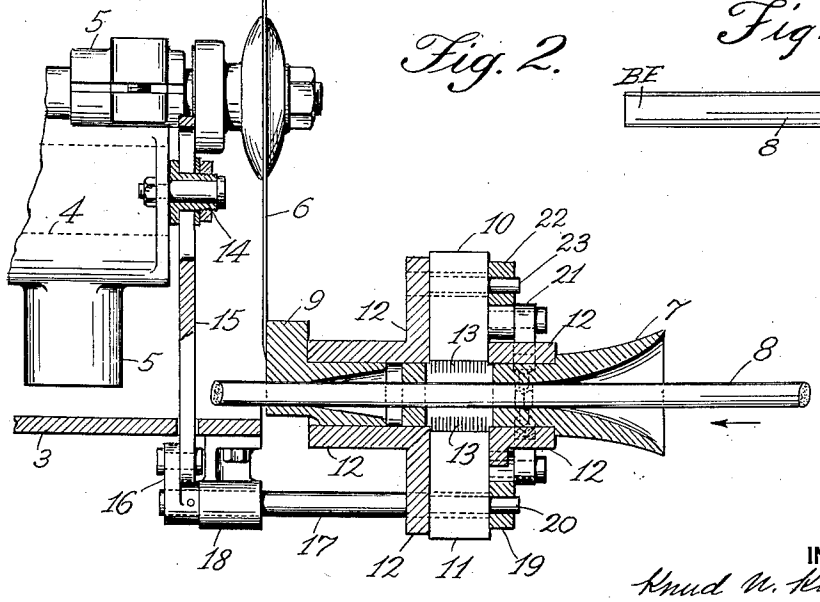


Fig. 3.

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CIGARETTE-PERFORATING DEVICE

Application filed April 18, 1927. Serial No. 184,498.

This invention relates to perforated cigarettes.

It has been discovered that by making a cigarette comprising a filler and a filler enclosing wrapper having perforations providing for intake of air between the burning end of the cigarette and the mouth of the smoker, the smoke will be cooled and rarefied and the cigarette will have a much milder taste, especially upon first lighting the cigarette when some of the products of combustion of the match are liable to be drawn into the smoker's mouth. The underlying object of the present invention is the production of such a cigarette, and a method and means for making the same. With this and other objects not specifically mentioned in view, the invention consists in a cigarette so made and in a method and certain constructions and combinations for making the same which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a front elevation, partly broken away and in section, of a device constructed in accordance with the invention and operative in connection with a cigarette machine of the continuous rod type; Fig. 2 is a sectional side elevation of the structure shown in Fig. 1; and Fig. 3 is a side elevation of a cigarette embodying the product branch of the invention.

In carrying the invention into effect, there is provided a filler of the usual type, and a filler enclosing wrapper of the usual type but having perforations providing for intake of air between the burning end of the cigarette and the mouth of the smoker to cool and rarefy the smoke, and thus give the cigarette a milder taste. There is further provided a method of making such a cigarette which consists in enclosing filler within a wrapper, and thereafter perforating said wrapper. And when the improved cigarette is to be made on a cigarette machine of the continuous rod type, there is provided the usual cigarette rod guide, and means for perforating the wrapper of said rod in said guide. The elements of such a device may be varied in construction within the scope of the claims, for the specific device selected to illustrate the invention is but one of numerous possible concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described, nor indeed to the specific method described.

While it is possible to perforate the wrapper of the improved cigarette before the filler is enclosed therein, it is preferable (for well known economic reasons) to make the cigarettes in machines of the continous rod type and to perforate the wrapper after the filler is enclosed therein and the rod is thus formed, for the reason that perforating the paper before the filler is enclosed therein would so weaken it that it would be more liable to tear at the perforations when passing through the rod forming, pasting and sealing mechanisms.

Referring to the drawings, the reference characters 3, 4, 5, 6, 7, 8 and 9 respectively indicate the frame, the shaft, the cutter arm, the circular cutter, the rod guide, the cigarette rod and the ledger plate all constructed and operating in a well known manner.

At the proper distance from the face of the ledger plate 9, so as to be just within one cigarette length, the perforators 10 and 11 are slidably mounted in a frame 12, mounted upon or forming a part of the guide 7, the inner face of each perforator being studded with a gang of pins 13, which are so graduated in length that their points form circular surfaces fitting, when brought into perforating position, around the cigarette rod 8, the two gangs of pins acting upon opposite sides of the cigarette rod. The perforating devices partake of the usual reciprocating movement of the cigarette rod guide 7 and they come into action when the guide is moving at the same speed as the cigarette rod.

To the arm 5 is fastened, by means of a sleeved pivot 14, an adjustable link 15 which is pivoted to an arm 16 on a shaft 17 supported in a bearing bracket 18 bolted to the under side of the frame 3. To the shaft 17 is attached a lever 19, one arm of which is forked

and engages a pin 20 carried by the lower perforator 11. The other arm of the lever 19, by an adjustable link 21, is connected to a forked lever 22, pivoted on the frame 12 and engaging a pin 23 carried by the upper perforator 10. By the means just described, alternate approaching and retreating movements of the two perforators, with respect to the cigarette rod, are produced.

As the cutter 6 moves downward to cut the cigarette rod 8, the link 15 attached to the arm 5 pushes down the arm 16, thereby turning the shaft 17 in a counter-clockwise direction, when viewed as in Fig. 1. This motion of the shaft 17 causes the forked end of the lever 19 to move up and, through the link 21, causes the forked end of the lever 22 to move down, thereby simultaneously bringing the pins 13 of the perforators 10 and 11 into engagement with the cigarette rod 8, perforating the same while traveling with it during the cutting period of the cutter 6. After the cut, when the cutter 6 moves up, the perforators separate and, with the cutoff, travel in the opposite direction to the cigarette rod until they again engage with the latter a cigarette length away from their former point of engagement.

In Fig. 3, which illustrates a cigarette constructed in accordance with the invention, 8 indicates the cigarette generally; BE indicates the burning end; PZ indicates the perforated zone; and ME indicates the mouth end of the cigarette. The suction produced by the smoker, which draws smoke from the burning end of the cigarette through the same, also draws air through the perforations in the perforated zone. The inflowing air cools and rarefies the smoke and gives the cigarette a milder taste.

What is claimed is:

1. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide at regular spaced intervals.

2. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said guide and said means having like reciprocating movements.

3. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including actuating means and perforating devices on opposite sides of said guide.

4. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including actuating means and a gang of reciprocating perforating pins.

5. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including a moving part of a cutoff and a perforating device actuated by said part.

6. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including a moving part of a cutoff and two interconnected gangs of perforating pins actuated by said part and operating on opposite sides of said guide.

7. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including a moving part of a cutoff and two interconnected gangs of perforating pins slidably mounted on said guide and working on opposite sides of said rod and actuated by said part.

8. The combination with a cigarette rod guide, of means for perforating the wrapper of said rod in said guide, said means including oppositely-disposed gangs of perforating pins slidably mounted in said guide on either side of said rod, linkage connecting said gangs to cause them to move toward and away from each other, and means for actuating said linkage.

9. The combination with means for guiding a moving continuous cigarette rod, of means for perforating the wrapper of the moving rod at regular spaced intervals.

In testimony whereof, I have signed my name to this specification.

KNUD N. KNUDSEN.