

[54] **METHOD OF PRODUCING CIGARETTES
OR THE LIKE FILLED WITH TOBACCO
CONTAINING ONE OR MORE AROMATIC
LIQUID AGENTS, AND A DEVICE FOR
CARRYING OUT THE METHOD**

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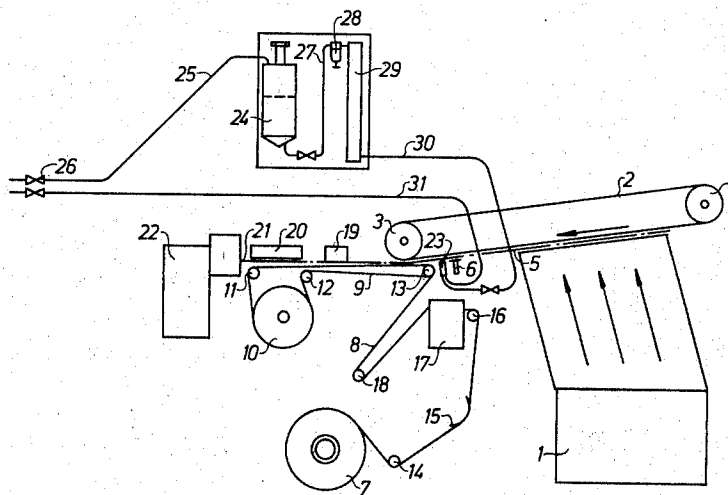
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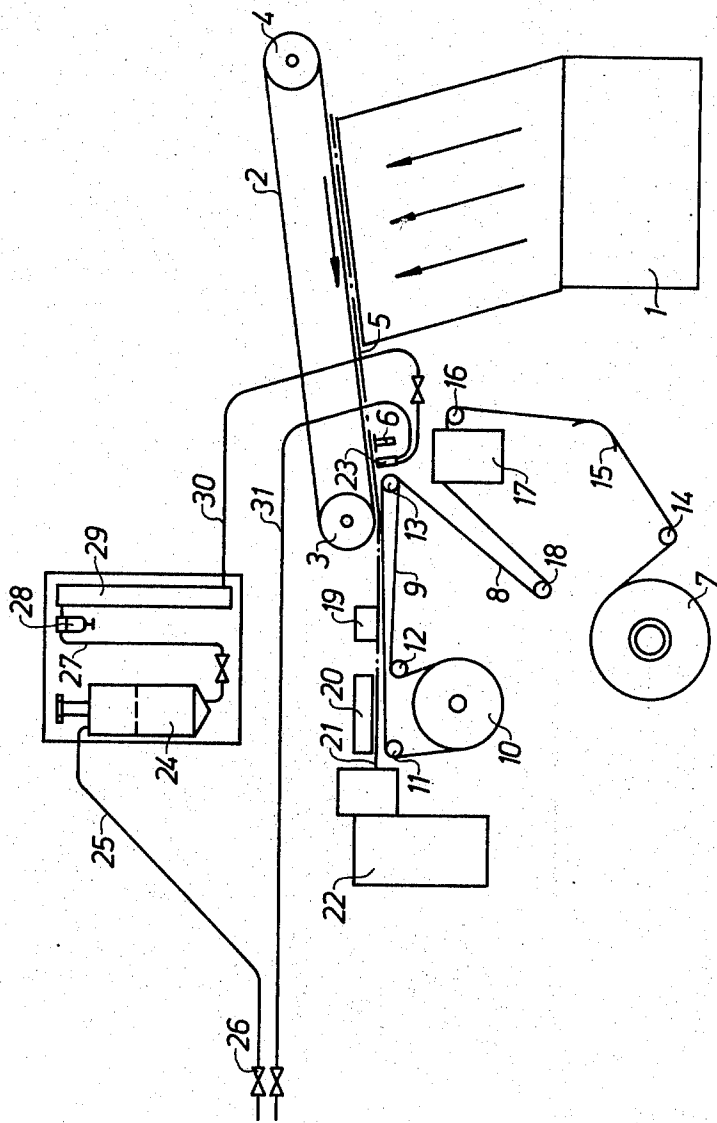
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ABSTRACT

Apparatus is disclosed for producing cigarettes having a tobacco filler containing one or more aromatic substances. The aromatic substances are dissolved or dispersed in a liquid and sprayed onto the tobacco filler immediately prior to its being formed into a rod and wrapped with paper to minimize evaporation from the tobacco. The spray is controlled so as to minimize ambient air contamination.

2 Claims, 1 Drawing Figure





METHOD OF PRODUCING CIGARETTES OR THE LIKE FILLED WITH TOBACCO CONTAINING ONE OR MORE AROMATIC LIQUID AGENTS, AND A DEVICE FOR CARRYING OUT THE METHOD

The invention relates to a method and a machine for producing cigarettes having a tobacco filler containing one or more aromatic substances dissolved or dispersed in a liquid, said method being carried out in a rod making machine including a belt, or any other conveyor transporting a tobacco layer from a distributor to a cigarette paper strip, reconstituted tobacco strip forming an outer wrapper for the tobacco.

In the production of cigarettes containing tobacco with additives of aromatic substances, the tobacco is initially treated by spraying a fluid containing the aromatic substance onto the tobacco before it is supplied to the tobacco distributor of the rod making machine. A common aromatic substance is menthol, dissolved in a volatile alcohol, which in most cases is ethyl alcohol. In order to obtain an absolutely homogeneous cigarette quality the tobacco mass must be carefully treated which is very time consuming. A serious disadvantage with the above treatment is that the highly volatile alcohol evaporates and fills the treatment room and carries a substantial amount of menthol into the air, which creates a danger to the health of the workers. It has turned out that certain amounts of menthol is dangerous to the workers and, thus, a serious problem.

Another problem appearing in connection with the use of tobacco with aromatic substances of the above type is that the substances impregnate the distributor and the conveyor belts which means that the machine must be carefully cleaned before cigarettes containing tobacco without aromatic substances can be produced. This problem is present no matter whether the solvent for the aromatic substances is volatile or not.

The said pretreatment of tobacco using a volatile solvent is also expensive because a substantial portion evaporates from the tobacco and cannot be recovered. Pretreated tobacco cannot be stored because the quality of the finished product in that case will be very uneven due to the evaporation of the dissolved aromatic substances.

The main object of the invention is accordingly to provide a method and a machine for adding one or more aromatic substances to the tobacco with a minimum of liquid loss, and prevent dangerous gases to pollute the air in the treatment room, and to prevent distributor and other parts of the machine from being impregnated with the aromatic substances.

This object is realized by a method in which the liquid containing the aromatic substance or substances is sprayed upon the tobacco layer on the conveyor in a position between the tobacco distributor and the position of transferring the tobacco layer onto the paper strip or reconstituted tobacco strip. According to the invention a device for a rod making machine for making cigarettes or the like is further produced, which machine has a conveyor belt for transferring a tobacco layer from a distributor onto a strip of cigarette paper or onto a strip of reconstituted tobacco. The new device is characterized by a source for said liquid adapted to impart a substantially predetermined pressure to the liquid and means for conducting the pressurized liquid to a spray nozzle provided on the machine between the tobacco distributor and the position of transferring the

tobacco layer onto the conveyor belt and which nozzle means is directed towards the tobacco layer.

The liquid which preferably is sprayed in the form of an aerosol will accordingly not contact the distributor, for example, and the amount of liquid thus sprayed will be entirely or at least substantially absorbed by the tobacco layer ensuring a minimum amount of liquid and an even impregnation of the tobacco layer along the cigarette rod produced by the machine. The tobacco layer which is successively impregnated will be immediately wrapped with a cigarette wrapper so that the resulting product obtains an even quality.

The minor amount of solvent and gases from the aromatic substances which mix with the atmosphere within the treating room do not disturb the worker and can easily be vented out.

An embodiment of the invention will be described with reference to the accompanying drawing.

The main parts of a cigarette rod machine provided with a device according to the invention are disclosed in the drawing. Tobacco scattered from a distributor 1 is sucked onto an air permeable belt 2 through which air is drawn in the direction of the arrows within the distributor by means not shown. The belt 2 is driven in the direction indicated by an arrow and is guided over two rollers 3 and 4 at least one of which being driven by drive means not shown. The tobacco layer held by suction on the belt 2, indicated by the dot and dash line 5 is transferred by belt 2 towards a driven, circular knife 6 which, as is well known in the art, cuts away excess tobacco to obtain a tobacco layer of a predetermined height or thickness. The width of the tobacco layer has been determined by means not shown and the tobacco layer leaving knife 6 therefore per unit of length contains the tobacco volume required for making cigarettes. After having passed roller 3 and, thus left the suction area the tobacco layer is transferred onto a cigarette paper strip 8 which is conveyed on a form belt 9. The form belt 9 is endless and guided over a driven roller 10 and guide rollers 11, 12 and 13. The paper strip 8 is drawn from a bobbin 7 over a guide roller 14, a guide plate 15 and a guide roller 16 and passes a printing device 17, in which the cigarette strip is provided with adequate printings. From the printing device 17 the strip 8 is drawn over a guide roller 18 onto the upper surface of the form belt 9. The paper strip 8 is wrapped around the tobacco layer 5 by means of conventional shaping means, not shown, and the longitudinal edges of the strip wrapped around the tobacco are joined by a binding agent in a binding agent applicator 19 and the final sealing of the edges takes place in a sealing device 20. The finished cigarette rod 21 then runs into a cutter mechanism 22 to be cut to cigarettes.

In the production of cigarettes containing one or more aromatic substances, dissolved or dispersed in a liquid, menthol in alcohol, for example, a nozzle means 23 is according to the invention provided between the distributor 1 and the position for transferring the tobacco layer 5 onto the paper strip 8, the nozzle means 23 being arranged to spray the aromatic liquid onto the tobacco layer the liquid preferably being converted into an aerosol.

In the embodiment shown the liquid is stored in a closed container 24 the upper portion of which is connected to a source of pressurized air through a conduit 25. The liquid in the container is, thus, pressurized, and

the pressure is preferably controlled by a valve 26. Liquid is forced from the container 24 through a conduit 27 and through a filter 28 to a flow regulator 29 supplying conduit 30 with a controlled amount of liquid per unit of time determined in accordance with the velocity of the tobacco layer 5 and in accordance with the desired amount of aromatic substances per unit of volume of the tobacco.

From conduit 30 liquid is sprayed through one or more nozzle openings on the tobacco layer to be absorbed by the tobacco. Immediately following the application of liquid the cigarette paper strip 8 is wrapped around the tobacco provided with aromatic substances. The resulting cigarette rod 21 will, accordingly, contain tobacco which in respect to its contents of aromatic agents, menthol for example, is absolutely homogeneous.

To obtain the best impregnation of the tobacco with the aromatic liquid the latter is preferably converted to an aerosol. The nozzle means 23 is, therefore, provided with an outlet passage which by a conduit 31 is supplied with pressurized air which atomizes the liquid fed from the nozzle means.

Even if the invention has been shown on a rod making machine of the type sucking the tobacco onto a conveyor belt 2 it is to be understood that the invention can be used on rod making machines in which the tobacco is showered onto a conveyor belt underneath the distributor.

The arrangement shown for supplying liquid to the nozzle means 23 can be modified in several ways. The liquid could as well be pumped to the nozzle means by a pump, providing a regulated volume of liquid per unit of time, for example.

It is further anticipated that the invention even if described in connection with the manufacture of cigarettes can as well be applied to the modified rod making machines which produce cylindrical cigars provided with reconstituted tobacco wrappers.

The conveyor belt shown can be replaced by another type of conveyors, a drum, for example, which are well known in the cigarette making art.

What is claimed is:

1. In an apparatus for producing cigarettes or cigars containing one or more aromatic substances in a liquid, of the type including a suction conveyor (2) for transporting a tobacco layer (5) from a tobacco distributor (1) onto a strip of wrapper material (8), the improvement comprising: a source (24) of said liquid having a closed container (24), with means to continuously feed pressurized air to the interior of the container to keep the liquid under a predetermined pressure, conduit means (30) having one end connected to the bottom portion of the container and its other end connected to the nozzle means (23) provided on the machine between the distributor (1) and the position for transferring the tobacco layer (5) onto the wrapper strip, said nozzle means continuously directing the liquid onto the tobacco layer on the suction conveyor to allow the liquid to be drawn into the tobacco before it is transferred to the wrapper strip.

2. The improved apparatus of claim 1, wherein said nozzle means (23) in addition to a liquid supply passage is provided with an adjacent air passage for feeding pressurized air into the liquid leaving the nozzle means.

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