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APPARATUS FOR THE TREATMENT OF TOBACCO

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Fig. : 1

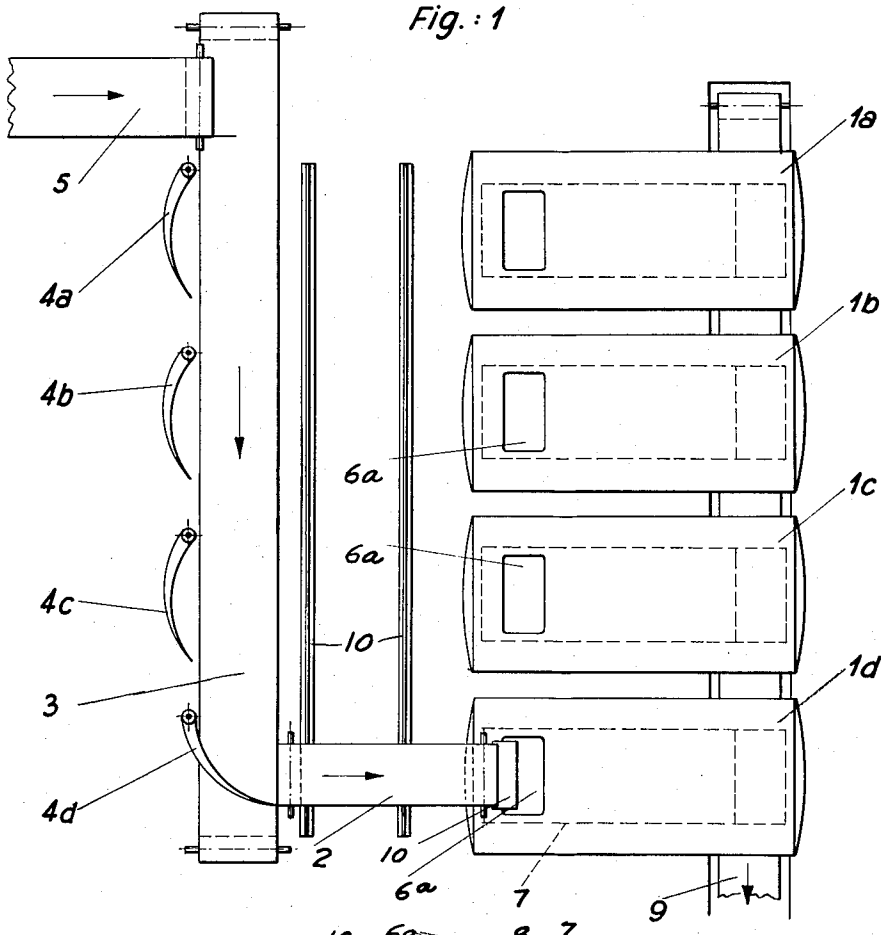
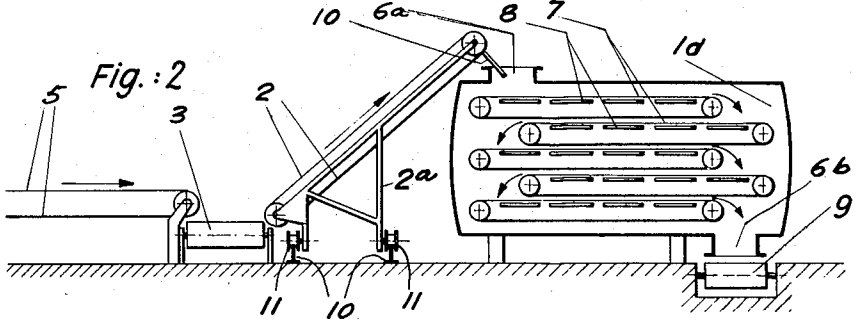


Fig. : 2



INVENTOR
Johann Aschenwald
By Singer, Ellert, Stern & Carlberg
ATTORNEYS

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APPARATUS FOR THE TREATMENT OF TOBACCO

Johann Aschenwald, Munich, Germany; Maria Aschenwald and Josef Dirscherl, heirs of said Johann Aschenwald, deceased, assignors of one-half to Hauni Maschinenfabrik Korber & Co., G. m. b. H., Hamburg-Bergedorf, and one-half to Maschinenbau Aktiengesellschaft Balcke, Bochum, Westphalia, Germany

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1 Claim. (Cl. 214—16)

The invention relates generally to apparatus for the treatment of tobacco and more particularly to apparatus for the fermentation of tobacco under vacuum and especially to such installations for the continuous processing of tobacco applying more than one, preferably four vacuum chambers to each evacuator.

To include vacuum treatment in continuous lines for tobacco processing, it has been customary to enter the tobacco into the vacuum chamber through slide gates onto several horizontally spaced conveyor belts arranged within the vacuum chamber. The tobacco rests on the belts during the period of its vacuum treatment to be removed through the gates after the treatment is finished. The large quantities of tobacco usually to be handled require vacuum chambers of considerable size which is often impossible to accommodate within present buildings and installations. Furthermore, it is difficult to evacuate such large chambers, and the time required to charge and discharge the tobacco through the gates hampers a continuous uninterrupted operation of the processing line.

An object of the present invention is to avoid a large vacuum vessel by providing more than one vacuum chamber for each processing line which are all connected to one evacuating unit. It has been found preferable, for example, to apply four vacuum chambers in an installation for the fermentation of tobacco. The four chambers are used in a continuous cycle of operations and whereas one chamber is charged and discharged, the second is heated, the third evacuated, and the fourth moisture treated. The number of chambers preferably to be installed for a certain process depends on the number of phases, and duration of each phase, the vacuum treatment of the process required.

Another object resides in the provision of a conveyor for selectively feeding the chambers and to provide a movable conveyor for being positioned opposite a preselected vacuum chamber so that selected tobacco can be fed from another conveyor parallel with said vacuum chambers. There being feeder devices on the conveyor for feeding the selected tobacco such that the tobacco may be transferred from the conveyor to the movable conveyor in any of its preselected positions.

Other objects of the invention, of which various modifications are possible, will become apparent during the following description of a preferred form, taken in connection with the accompanying drawing which illustrates diagrammatically a simplified arrangement according to this invention.

Fig. 1 is a diagrammatical top plan view of an installation with four vacuum chambers, as used for the fermentation of tobacco; and

Fig. 2 is a diagrammatical section through one of the vacuum chambers into which at the moment tobacco is charged and at the same time vacuum treated tobacco is discharged.

The apparatus as illustrated consists primarily of four tubular vacuum chambers **1***a*, **1***b*, **1***c* and **1***d* which are

connected to a common evacuator and a common steam supply, both not shown on the drawing. On two rails **10** in front of the vacuum chambers is a charging conveyor **2** having wheels **11** on the frame **2***a* thereof which may be moved into charging position relative to a preselected chamber. The charging conveyor abuts with its lower end on a conveyor **3**, transporting tobacco material toward the apparatus. It may be mentioned at this point, that conveyor **3** in turn is supplied from conveyor **5** on which the selected tobacco material for treatment is selected. To guide the material onto the charging conveyor in each of its charging positions, stripper arms **4***a*, **4***b*, **4***c* and **4***d* are pivotally secured to conveyor **3** substantially in front of the corresponding vacuum chambers. The stripper arms may be swung across the belt of conveyor **3** to diverge the tobacco material onto the charging conveyor, and stripper arm **4***d* is shown in such a position. The vacuum chambers have inlet gates **6***a* at the top and outlet gates **6***b* at the bottom. A conveyor system of a series of vertically spaced conveyor belts **7** is arranged within the vacuum chambers in such a manner that the tobacco carried in the direction of the belts, indicated by the arrows, passes in a zigzag path from top to bottom within the chambers. Heating pads **8** are interposed beneath conveyor belts **7**. A conveyor belt **9** passes beneath the outlet gates of all chambers and carries the vacuum treated tobacco discharged from the outlets to a subsequent destination.

The operation of the apparatus when used for the fermentation of tobacco will now be described. On conveyor **5**, the tobacco is selected and all moulded and inferior leaves removed, so only good quality tobacco leaves are transferred onto conveyor **3**. On conveyor **3**, the tobacco moves in the direction indicated by the arrow until it comes in contact with stripper arm **4***d* just swung inward on the conveyor. As charging conveyor **2** is moved to this charging position and abuts conveyor **3** at this point, the tobacco is urged onto this conveyor and rises thereon to the charging level of vacuum chamber **1***d*. It may be mentioned here, that when vacuum chamber **1***c* shall receive its charge, the charging conveyor **2** is moved to this charging position and stripper arm **4***c* is swung inward and so forth. The tobacco dropping off charging conveyor **2** enters inlet gate **6***a* by assistance of a spout **10**. Within the vacuum chamber the tobacco is carried forward and distributed by the conveyor belts **7**, as may be seen on Fig. 2 of the drawing. As the belts are horizontally spaced and arranged in staggered relation to each other, moving alternately in opposite directions as indicated by the arrows, the tobacco dropping off the upper belt lands on the next below and so forth until it advances to the outlet gate **6***b*. After all belts **7** have been loaded with tobacco, the belt system is brought to rest and the vacuum chamber is closed by closing the gates **6***a* and **6***b*. The tobacco on belts **7** within the chamber lying in close contact with heating pads **8** is now brought to sterilization temperature, whereby the chamber is evacuated. The tobacco dries on account of high temperature and low pressure. After conclusion of the sterilization and drying process the tobacco is steamed until it reaches a temperature of about 45 degrees centigrade and a moisture content of about 14%. The tobacco so treated is now removed from the vacuum chamber by opening the gate **6***b* and setting the belt system **7** in movement again. The tobacco drops through gate **6***b* onto conveyor **9** to be carried forward to subsequent operations or to a bale press. It will be understood that while the belt system **7** is set in operation to remove the treated contents, gate **6***a* is opened and a new charge supplied and advanced into the chamber by the moving belts at the same time.

At the time during which vacuum chamber 1*d* is being discharged and charged, chamber 1*a* is being heated, chamber 1*b* is being evacuated, and chamber 1*c* is being steam moistened. This working cycle in turn advances from one chamber to the next and a continuous working process is thus assured. After charge and discharge of one vacuum chamber has been completed, charging conveyor 2 is moved on its rails to the next vacuum chamber, for instance 1*c*, the corresponding stripper arm 4*c* is swung across conveyor 3, the corresponding gates 6*a* and 6*b* of chamber 1*c* are opened, and, by operating conveyor belts 7, charge and discharge of this chamber 1*c* takes place.

In this manner a continuous stream of tobacco, entering on conveyor 3 and leaving on conveyor 9, as ready fermented tobacco, is handled by the novel vacuum treatment apparatus according to the present invention.

It will be understood that it is also possible to work with only three vacuum chambers and one open steam chamber, through which the tobacco passes after having been sterilized and dried in the vacuum chambers, without losing the features of this invention.

Having thus described a preferred embodiment of my invention, I desire to have it understood that the apparatus shown is only illustrative and that various alterations in arrangement of parts and change of details are possible without departing from the scope of the invention.

What I claim is:

In an apparatus for treatment of tobacco, a plurality of vacuum chambers arranged horizontally in a row, alined charge gates in the upper portion of said chambers, alined discharge gates in the bottom portion of said chambers, a supply conveyor substantially parallel to said line of charge gates and at considerable distance therefrom, a discharge conveyor substantially parallel to said line of discharge gates adjacent the opposite end of said vacuum chambers from said charge gates and below the same, a conveyor band substantially perpendicular to said supply conveyor and for transporting tobacco

to said supply conveyor, a charging conveyor for conveying tobacco from said supply conveyor to said charge gates in a direction transverse to said supply conveyor, a frame supporting said charging conveyor, wheels on said frame, fixed tracks for supporting said wheels and running parallel to said line of charge gates between said supply conveyor and said charge gates to allow said charging conveyor to be moved on said tracks to any of said charge gates, a discharge spout connected with the discharge end of said charging conveyor to convey the tobacco into the charge gates and horizontal arms pivotally mounted beside said supply conveyor one for each of said vacuum chambers and at the opposite side of said supply conveyor from said charge gates, said arms being individually movable to a position across said supply conveyor for diverting the tobacco from said supply conveyor to said charging conveyor.

References Cited in the file of this patent

UNITED STATES PATENTS

573,913	Patterson et al.	Dec. 29, 1896
626,579	Viele	June 6, 1899
702,408	Cook	June 17, 1902
806,732	Blaisdell	Dec. 5, 1905
1,237,931	Malvezin	Aug. 21, 1917
1,250,496	Passburg	Dec. 18, 1917
1,275,547	Forrest	Aug. 13, 1918
1,574,143	White	Feb. 23, 1926
1,914,778	Klyver	June 20, 1933
2,123,080	Rowland	July 5, 1938
2,217,934	Baer	Oct. 15, 1940
2,267,900	Doyle	Dec. 30, 1941
2,285,331	Doyle	June 9, 1942
2,285,469	Smith et al.	June 9, 1942
2,452,983	Birdseye	Nov. 2, 1948

FOREIGN PATENTS

902,254	France	Aug. 23, 1945