

April 8, 1930.

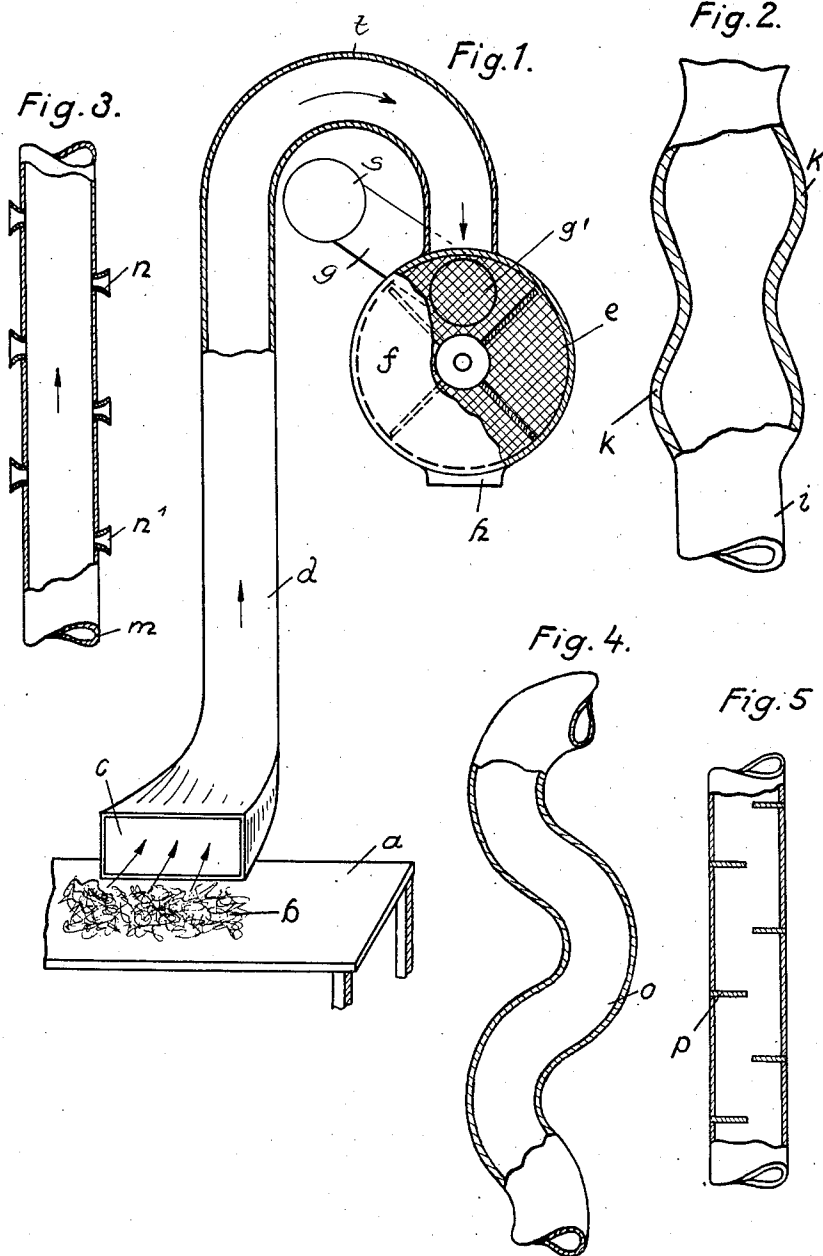
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1,753,573

PROCESS AND APPARATUS FOR PREPARING RAW TOBACCO

Filed April 28, 1928

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

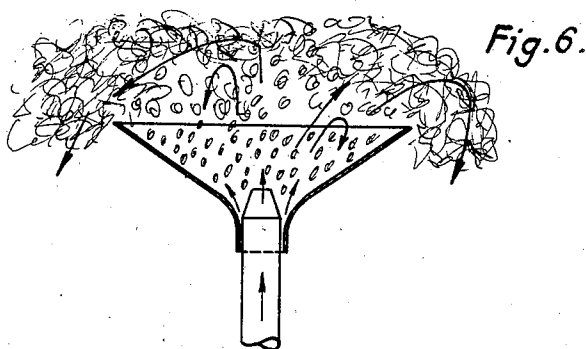


Fig. 7.

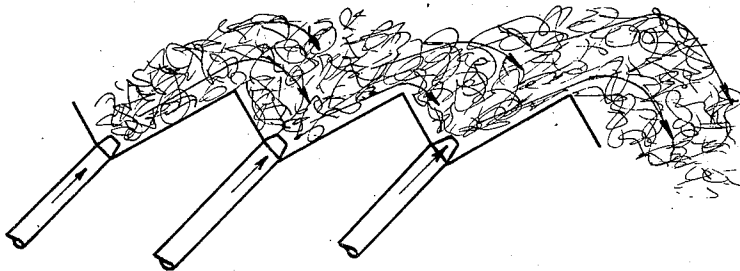
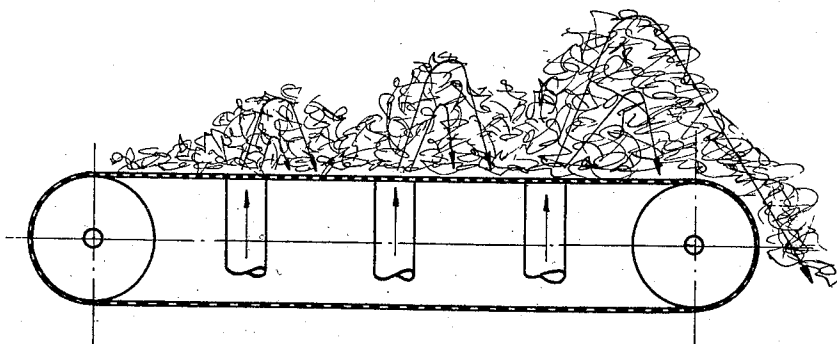


Fig. 8.



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UNITED STATES PATENT OFFICE

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PROCESS AND APPARATUS FOR PREPARING RAW TOBACCO

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Hitherto raw tobacco has usually been prepared by hand; the bundle of tobacco being untied and loosened by hand. Machines have already been proposed for this purpose in which the tobacco is placed between two undulating bands in order to separate the leaves from one another.

This method of mechanical preparation has not yet proved fully satisfactory.

In accordance with the present invention, the preparation is effected solely by pneumatic means, that is to say the raw tobacco having been united is subjected either by hand or mechanically to the action of a current of air whereby the leaves are loosened and separated.

Preferably this loosening is effected by the tobacco which has been carried by the air current into a tube being tossed about by the air current in consequence of the change in the centre of gravity resulting from the gradual separation of the leaves with the result that it gradually falls apart. The effect of the air current can be increased by imparting a certain shape to the tube into which the tobacco is driven. If for instance the tube is widened in places then as the result of the varying speed of the current of air passing through the tube the tobacco is whirled about and loosened. In like manner by providing lateral openings in the tube, through which air is sucked in, the whirling movement may be assisted, or other variations in the shape of the tube may produce an effect upon the loosening process.

Drawings are appended showing diagrammatically various forms of execution of the invention.

In the drawings:—

Fig. 1 shows an arrangement according to this invention.

Figs. 2 to 5 are part sectional views showing certain modifications.

Figs. 6, 7 and 8 are views showing further modifications.

In the drawing *a* Fig. 1 indicates a table on to which a bundle of tobacco *b* is placed either by hand or by any mechanical or pneumatic feeding device. This bundle is freed from its retaining cord, and then placed in

front of the opening *c* of a vertically arranged tube *d*. The tube *d* leads to a so-called lock, consisting of a drum *e* in which a bucket or vane-wheel *f* rotates. Laterally attached to the drum is a discharge or suction pipe *g*, which is covered by a screen. The drum has an outlet *h* at its lower end.

The bundle of tobacco *b* lying on the table is drawn into the tube *d* by suction means *s*. Preferably the suction tube is attached to the opening *g'*. The action of the air current detaches the outer leaves from the bundle. The continually changing centre of gravity of the bundle causes it to be twisted and turned about in various directions within the air current, and by this movement the tobacco leaves are gradually detached and the leaves thus freed carried onward by the air current. They then fall into the upper cell of the lock formed by the vanes of the wheel *f*.

The dust passes through the screen and is carried off through the opening *g'*, whereas the tobacco leaves remaining in the cell are, by the movement of the vane wheel, finally brought opposite to the opening *h*, through which they fall.

It is of course essential that the tube *d* be of sufficient length, as the entire process of detaching the leaves has to take place within this tube. There is no need for a bend *t* of 180°, such as shown in Fig. 1, at the upper end; if preferred the leaves can be removed in other ways or carried along further. However, the bend *t* in Fig. 1 acts as a means for increasing the effectiveness of the air current to cause more effective separation of the leaves than in the straight portion of the tube.

In the arrangement shown in Fig. 2, the loosening of the leaves is assisted by the special shape given to the tube. In this case the tube *i*, in which the loosening takes place, is provided with expanded portions *k*. As a result of these expansions the speed of the air current in its passage through the tube *i* varies, and these variations impart a whirling movement to the air which helps to separate the leaves.

According to the further modification shown in Fig. 3, a tube *m* is employed which

is provided with lateral openings n distributed along its length. To facilitate the introduction of air, nozzles n' can be fitted to these openings. In this case the air flowing in through the openings n is directed laterally against the bundle of tobacco in the air current, whereby the process of removing the leaves is assisted and the constant whirling movement enhanced.

According to the arrangement shown in Figs. 4 and 5, the tube itself is fitted with obstructions. In Fig. 4 the tube o is shown as a curved tube, that is to say, having S shaped bends, and in Fig. 5 pins or projections p are inserted into the tube q . The tobacco bundle on meeting the curves, or pins or projections is turned, or loosened and thereby the work of the air current is aided.

Naturally quite a large number of other forms of execution of the invention can be devised.

For instance it is not essential that the air-current should act upon the tobacco within a tube; the tobacco can equally well be exposed to the current of air without any such tube as shown in Figs. 6 to 8.

According to Fig. 6, the compressed air is conducted through a tube in the centre, and if desired further air is sucked in from the side, injector fashion. The compressed air acts upon the bundles of tobacco thrown into the hopper at the top and throws them about until they are loosened, when the leaves fall out over the edge of the hopper.

According to Fig. 7, a number of tubes through which air is forced are arranged in series and lead out into a zig zag shaped track. The bundles of tobacco placed in front of the first air-tube are thrown up, loosened and then fall in front of the second compressed air nozzle, where they are further loosened, to fall in front of the third nozzle, and so on.

Finally, in Fig. 8 is shown a further arrangement in which the compressed air passes through several tubes, over which runs a conveyor belt permeable by air. The bundles of tobacco placed on the conveyor are carried successively past the several pressure tubes lying below, when they are thrown and whirled upwards and loosened, until ultimately the separated leaves are blown away from the conveyor by the final blast of compressed air; those which do settle back upon the feed belt are carried along by it.

In referring to the bundles of tobacco throughout the foregoing, it is not intended to limit the process and apparatus to the separation of the leaves from tied bundles but it is also intended that packs and masses of tobacco leaves can be utilized which have not been tied or otherwise held together except by adhesion.

Having now particularly described and ascertained the nature of my said invention,

and in what manner the same is to be performed, I declare that what I claim is:—

1. A method of separating bundled tobacco leaves according to which a bundle of tobacco after having been untied is subjected to the separating action of a current of air of sufficient force to strip off the leaves from the bundle.

2. A method of separating packs of tobacco, according to which a pack, after having been untied, is subjected exclusively to the action of a current of air of sufficient force to strip off the leaves.

3. A method of separating packs of tobacco, according to which a pack, after having been untied, is caused to travel through a path while being subjected exclusively to the action of a current of air of sufficient force to strip off the leaves.

4. A method of separating packs of tobacco, which consists exclusively in subjecting a pack, after having been untied, to the action of a current of air of sufficient force, whereby it is caused to travel in a definite path and simultaneously stripped of its leaves.

5. A method of separating packs of tobacco, which consists in whirling a pack and simultaneously stripping off its leaves exclusively by means of a current of air of sufficient force.

6. A method of separating packs of tobacco, which consists exclusively in carrying along a pack in a moving current of air of sufficient force, whereby the individual leaves are separated from one another by the entrance of the air between them.

7. A process for separating bundled tobacco leaves which comprises exposing the bundle of tobacco exclusively to a current of air of sufficient force.

8. A method of separating the leaves from tobacco bundles which comprises subjecting the bundle exclusively to a pneumatic action to effect the complete stripping operation.

9. A device for separating bundled tobacco leaves by exposing it to a current of air of sufficient force, comprising a tube through which passes an air current and adapted to receive at the one end a bundle of tobacco leaves and means arranged on the other end of the tube for delivering the separated tobacco leaves.

10. A device for separating bundled tobacco leaves by exposing it to a current of air of sufficient force, comprising a vertically placed tube through which passes an air current and adapted to receive at the lower end a bundle of tobacco leaves and means arranged on the upper end of the tube for delivering the separated tobacco leaves.

11. A device for separating bundled tobacco leaves by exposing it to a current of air of sufficient force, comprising a tube of varying cross-section through which passes an air

current and adapted to receive at the one end a bundle of tobacco leaves and means arranged on the other end of the tube for delivering the separated tobacco leaves.

5 12. A device for separating bundled tobacco leaves by exposing it to a current of air of sufficient force, comprising a tube through which passes an air current and adapted to receive at the one end a bundle of tobacco leaves, means arranged on the other end of the tube for delivering the separated tobacco leaves and means provided in combination with said tube and adapted to cause a whirling motion of the air current.

10 13. A device for separating bundled tobacco leaves by exposing it to a current of air of sufficient force, comprising a tube through which passes an air current and adapted to receive at the one end a bundle of tobacco leaves, means arranged on the other end of the tube for delivering the separated tobacco leaves, said tube being provided with lateral openings so that a whirling motion of the air current is induced by the air flowing in through the openings.

15 14. A device for separating bundled tobacco leaves which consists exclusively of a tube adapted to receive the bundles of tobacco leaves, and pneumatic means cooperating with said tube for forcing a current of air between the leaves of the bundles to cause separation thereof.

20 15. A method of separating adhering leaves of tobacco, according to which a current of air is caused to enter between the leaves to force them apart.

25 16. A device for separating adhering leaves of tobacco which consists exclusively of a tube adapted to receive the adhering leaves, and pneumatic means cooperating with said tube for forcing a current of air between the leaves, said tube having means for increasing the effectiveness of the air current to cause separation of the leaves.

30 In testimony whereof I affix my signature.
VALENTIN LORENTZ.

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