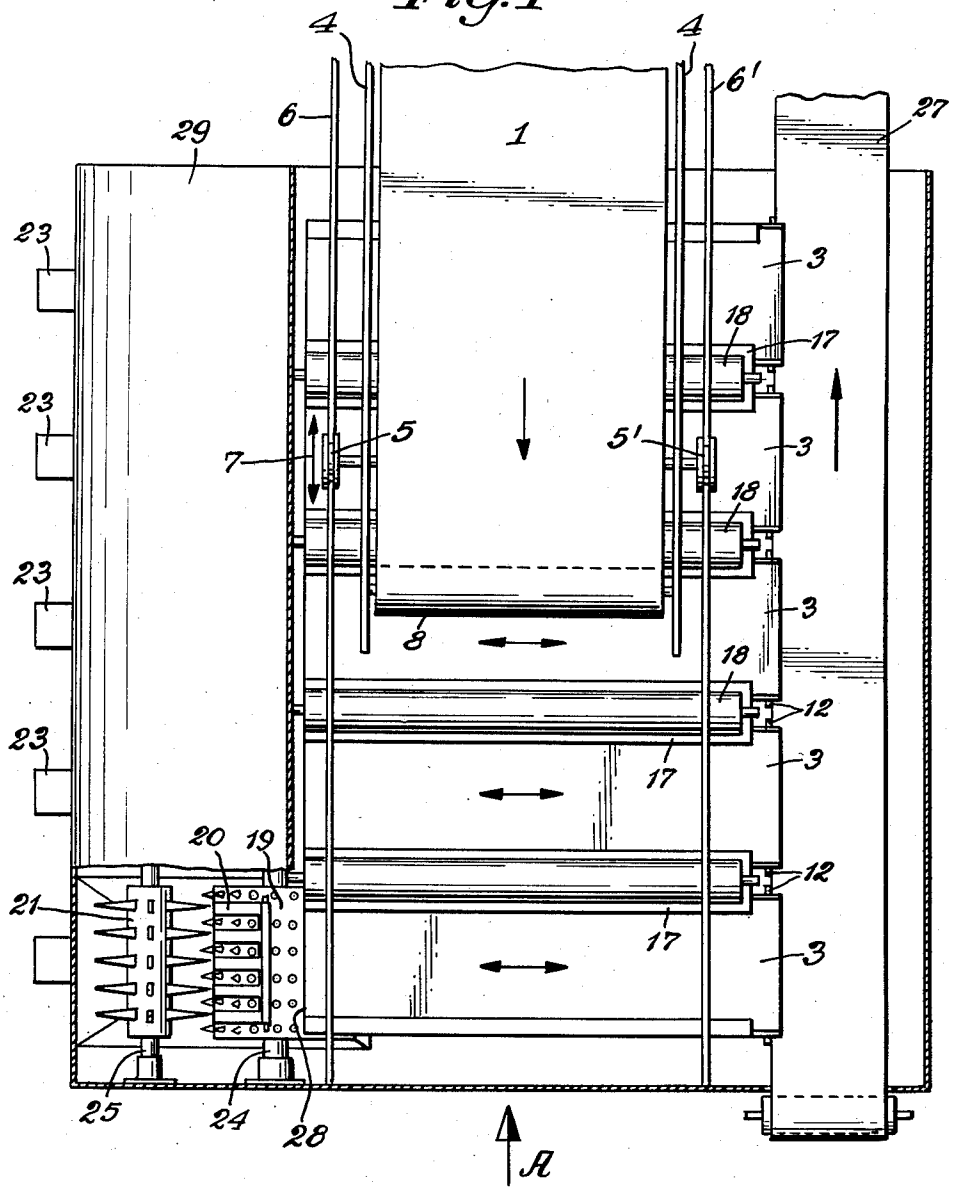
April 15, 1958 H. SCHLOSSMACHER 2,830,693

DEVICE FOR AUTOMATICALLY FEEDING AND DISTRIBUTING CUT TOBACCO

Filed May 29, 1956 2 Sheets-Sheet 1

Fig. 1



Inventor
Hubert Schlossmacher
by Singer, Stern & Carlberg
Attorneys

April 15, 1958 H. SCHLOSSMACHER 2,830,693

DEVICE FOR AUTOMATICALLY FEEDING AND DISTRIBUTING CUT TOBACCO

Filed May 29, 1956 2 Sheets-Sheet 2

Fig. 2

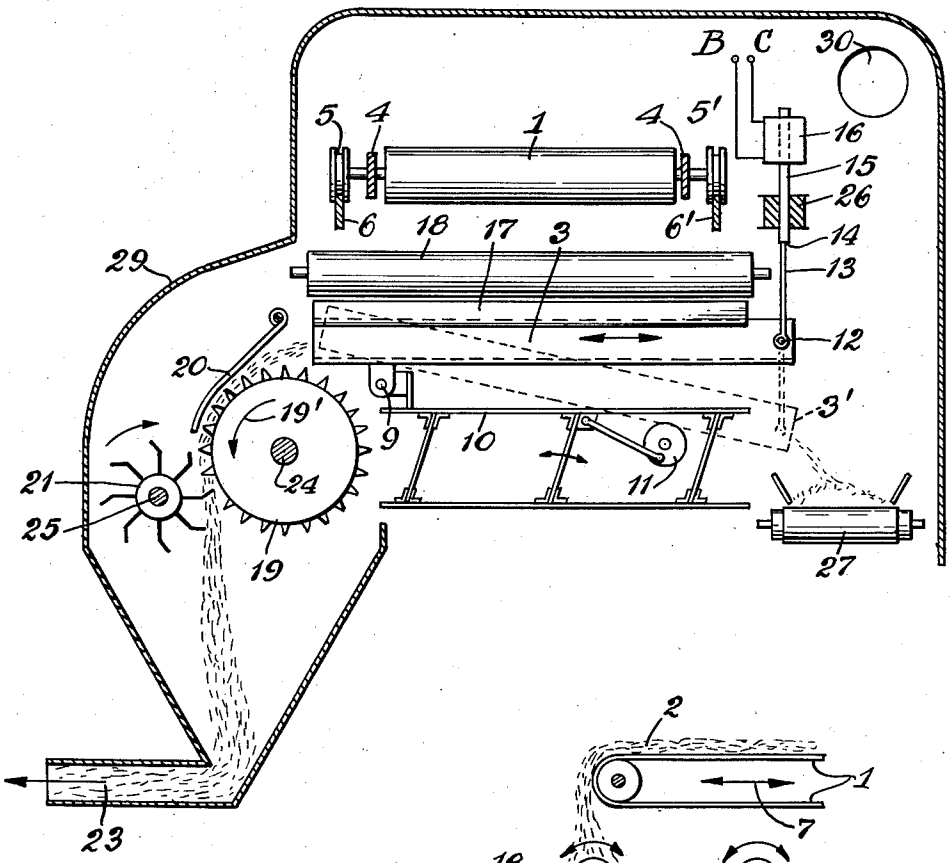


Fig. 3

Inventor
Hubert Schlossmacher

by Singer, Stern & Carlberg
Attorneys

United States Patent Office

2,830,693

Patented Apr. 15, 1958

2,830,693

DEVICE FOR AUTOMATICALLY FEEDING AND DISTRIBUTING CUT TOBACCO

Hubert Schlossmacher, Hamburg-Bergedorf, Germany, assignor to Kurt Korber & Co. K. G., Hamburg-Bergedorf, Germany

Application May 29, 1956, Serial No. 588,128

Claims priority, application Germany May 31, 1955

10 Claims. (Cl. 198—78)

This invention relates to a device for feeding and uniformly distributing cut tobacco to a plurality of cigarette machines, and more particularly to such a device which feeds and distributes in an improved manner cut tobacco to a plurality of cigarette machines, the latter preferably being fed by a pneumatic feeding system.

It is known in the art in connection with such devices to provide an auxiliary feeding device. In addition, it is also known in the art to combine such an auxiliary feeding device with a distributing device, the latter being simultaneously designed to serve as an equalizing device for excessive tobacco in such a manner that the cut tobacco, guided in the equalizing device, will be returned by the said auxiliary feeding device into the transmission of the material. The result is thus obtained that, for instance, in case of a breakdown of one of the tobacco cutting machines which supplies several cigarette machines,, the tobacco will be supplied to the cigarette machines by means of the said auxiliary feeding device, so that all the cigarette machines may continue their operation.

The foregoing arrangements in addition provide that only those cigarette machines will obtain tobacco which are operable, and those cigarette machines which are out of operation, or broken down, will not receive any tobacco. This is brought about by lifting magnets, which are operated by the respective cigarette machines, and which effect the opening or closing of the respective supply pipes. The tobacco falls in a pulsating manner from the outlets of the tobacco cutting machines and by a free fall reaches collecting funnel of the pneumatic conveying pipes.

The forementioned pulsating and uneven supply of the tobacco into the conveying system is extremely undesirable. On the contrary, an even, continuous, uniform steady supply of tobacco is required. In accordance with the present invention, therefore, a pair of spiked rollers are provided to accomplish the above purpose. These spiked rollers, located in front of the inlet of the pneumatic pipe line, are supplied with tobacco from vibrating conveyors. Tobacco is fed to the vibrating conveyors by means of an endless conveyor band, which moves back and forth over the conveyor devices.

It is thus possible to obtain first a rough, compact tobacco fleece formed from the tobacco moving from the reservoir, which fleece is then thrown downwardly upon the vibrating conveyors disposed below. The tobacco is then refined, in that during the movement upon the vibrating conveyor it will be condensed and equally distributed. Subsequently, the tobacco will be guided over the formentioned pair of spiked rollers and into the pneumatic conveying pipe line.

The use of a pair of spiked rollers and a vibrating conveyor separately disposed in cooperation with each conveying pipe is known in the art, but it is believed that it is new to combine their use in a distribution system, as mentioned above, particularly with regard to the

fact that, in accordance with the present invention, the vibrating conveyors may be swung out of their plane should one of the receiving machines break down. This will result in the disposition of the excessive tobacco upon the supply conveyor, which moves back and forth, or upon a further conveying band to be returned to the storage reservoir.

The present invention differs in a further respect from the devices known in the prior art, in that in the prior art devices only those pneumatic conveying pipe lines which are in cooperation with operable cigarette machines will be supplied with tobacco, and the excessive tobacco will be carried away, with each conveying pipe line having a separate oscillating conveyor; but in accordance with the present invention the individual conveyor bands are supplied from a common conveyor band, which moves back and forth in a direction transverse to the vibrating direction of the individual conveyors, and the individual conveyor may be swung out from the supply plane so that the tobacco from such a conveyor may be returned over further conveyors to the storage reservoir.

It is, therefore, a general object of the present invention to provide an improved device for feeding and distributing cut tobacco to a plurality of cigarette machines in an improved manner.

A further object of the present invention is to provide an improved distributing device for a plurality of cigarette machines such that a plurality of vibrating conveyors, individual to a plurality of pneumatic supply pipes, may be supplied with cut tobacco from a common conveyor band, the latter being movable back and forth transversely of the vibrating direction.

Still a further object of the inventon is to provide a device of the foregoing type in which a pair of spiked rollers cooperate with each vibrating conveyor to insure an even, uniform, continuous flow of cut tobacco to the receiving cigarette machines.

Yet a further object of the present invention is to provide a plurality of vibrating conveyors for supplying cut tobacco to a plurality of inlet pipes of cigarette machines, the vibrating conveyors being supplied by a common conveyor band movable back and forth transversely to the vibrating direction in which means are additionally provided to move a vibrating conveyor out of its normal supply plane should, for any reason, the receiving cigarette machine be rendered inoperable.

Further objects and advantages will readily become apparent upon reading the following specification, taken in conjunction with the drawing, in which:

Fig. 1 schematically illustrates a plan view of a distributing device constructed in accordance with the principles of the invention, which incorporates five vibrating conveyors adaptable for feeding five cigarette machines;

Fig. 2 schematically illustrates an end view of the device of Fig. 1, looking in the direction of the arrow "A," with certain parts of the device omitted for clarity; and,

Fig. 3 fragmentarily illustrates, in diagrammatic fashion, the movement of the cut tobacco from the conveyor belt upon the vibrating conveyors.

Referring to the drawing, and more particularly to Fig. 1 thereof, the reference numeral **1** represents an endless conveyor band, movable back and forth, which is supplied with cut tobacco from a storage reservoir, not shown. The cut tobacco **2** (Fig. 3) falls in a thin stream upon a plurality of vibrating conveyors **3**, which have a channel form and are disposed at a lower level than the endless conveyor band.

The conveyor band **1** is supported by a movable frame **4**, which rolls upon roller wheels **5**, **5'** guided by rails **6**, **6'**. An additional pair of roller wheels is provided on the delivery side of the movable frame **4** which is not shown in the drawing. The back and forth rocking move-

ment of the endless band 1 in the direction of the arrow 7 of Fig. 3 over a group of individual, single vibrating conveyors 3 may be effected by any known driving means, not shown, in such a manner that the delivery end 8 (Fig. 1) of the band 1 will uniformly supply the tobacco to all the vibrating conveyors 3. Each of these oscillating, channel-shaped conveyors 3 is connected by a pivot connection 9 (Fig. 2) with a vibrating frame 10, the latter being driven in known manner by an eccentric crankshaft device 11. Alternatively an electromagnetic rocking arrangement may be employed.

At the rear end of each vibrating conveyor 3 is provided a bifurcated link 13, pivoted at its lower end to a bearing bolt 12. To a point 14 of said link 13 is secured a lifting armature 15 of a solenoid 16. Preferably only a single vibrating frame 10 is provided for the entire group of vibrating channels 3. The immediately adjacent side walls of two oscillating channels or conveyors 3 are covered by a roof-shaped cover 17, the latter preventing the cut tobacco 2 from falling between said side walls and hence outside of the conveyors 3. In close proximity to said covers 17, and above the same, are disposed rotatable rollers 18, the rotatable direction of which may be changed quite often periodically, so that the hanging tobacco strings, which are invariably formed, are dropped in one of the vibrating channels 3.

The operation of the invention is as follows: In case all of the attached cigarette machines are operating and need to be supplied by the device, each of the individual vibrating conveyors 3 will convey the cut tobacco to a spiked roller 19 at the delivery place 28 (Fig. 1). The spiked rollers 19 rotate in the direction of the arrow 19'. After passing under a pressing device 20 associated with the spiked roller 19, the tobacco will be removed from the spiked roller 19 by the means of a striking roller 21. The tobacco then falls into the inlet opening of the respective pneumatic conveying pipe line 23. All of the spiked rollers 19 and the striking rollers 21 are driven by common shafts 24 and 25 respectively, the latter being driven by any suitable driving means, not shown in the drawing.

During the operation of the cigarette machines, the circuits connected to the terminals "B," "C" of the lifting solenoids 16 are energized, so that the lifting armatures 15 are attracted within the solenoids 16. In case it is necessary to interrupt the supply to one of the cigarette machines, as, for instance, should the distributor of the respective cigarette machine not be in order, or should the spool of such machine need to be exchanged, the current which energizes the above-mentioned circuit will be interrupted by hand or by a suitable automatic sensing device. The lifting armature 15 will then drop in its guide 26 a substantial distance and will cause the swinging of the particular vibrating conveyor about the pivot point 9 to the position shown in dotted lines 3' in Fig. 2. The conveyor 3 will now discharge the tobacco stream 2 upon a returning conveyor 27 without interrupting the vibrating movement of the particular conveyor 3. In such event, the tobacco will be delivered upon the said returning conveyor belt 27 and will be carried back into the storage reservoir. It is also possible to supply this returned tobacco to the endless band 1 by means of a transverse operating conveying band, not shown.

Preferably the entire device is enclosed by means of a cover 29 and is connected to a dust vacuum pipe line 30 to remove dust from the device. It is also particularly advantageous that the arrangement operate fully automatically, so that only one attendant is required to supply tobacco into the storage reservoir.

From the foregoing description it is apparent that there is provided an improved feeding and distributing device for supplying cut tobacco to a plurality of cigarette machines. A single conveyor is employed, using a back and forth rocking movement, to supply a stream of tobacco to a plurality of individual vibrating conveyors 3, and each vibrating conveyor 3 cooperates with a pair of spiked rollers to insure an even, continuous, uniform flow of tobacco into the inlet opening of the conveyor pipe to the particular cigarette machine. A single oscillating frame 10 is used for all of the oscillating conveyors 3, and a lifting solenoid means 16 is provided to tilt a conveyor 3 should its cigarette machine for any reason become inoperative, so as to discharge the tobacco stream into a return conveyor band. The use of the reversible rollers 18 together with the covers 17 insures an even distribution of the tobacco 2 with an avoidance of waste.

Although a particular feeding and distributing device has been illustrated in the drawing and described herein, it is to be understood that the same was merely for the purpose of illustration and that changes and modifications may readily be made therein by those skilled in the art without departing from the spirit and scope of the invention.

I claim as my invention:

1. A device for feeding and distributing cut tobacco to a plurality of cigarette machines comprising a plurality of shaker conveyors arranged in closely spaced relation and adapted to lie in a substantially horizontal plane for conveying cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyors in a direction at right angles thereto, means including a movable frame for supporting said common supply band, means for moving said movable frame back and forth over said plurality of conveyors to supply cut tobacco thereto from said common supply band, means for rocking said shaker conveyors about a horizontal axis to feed cut tobacco in a direction opposite to said first named direction of conveyor feed and a pair of cooperating spiked rollers associated with the outlet end of each conveyor to assist in feeding cut tobacco to the respective cigarette machines.

2. A device for feeding and distributing cut tobacco to a plurality of cigarette machines, comprising a plurality of shaker conveyors arranged in closely spaced relation and adapted to lie in a substantially horizontal plane for conveying cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyors in a direction at right angles thereto, means including a movable frame for supporting said common supply band, means for moving said movable frame back and forth over said plurality of conveyors to supply cut tobacco thereto from said common supply band, and means operable to move any conveyor out of the first mentioned conveying plane to enable said shaker conveyors to feed cut tobacco in an opposite direction, should the respective cigarette machine which it supplies be rendered inoperative.

3. A device for feeding and distributing cut tobacco to a plurality of cigarette machines comprising a plurality of shaker conveyors arranged in closely spaced relation and adapted to lie in a substantially horizontal plane for conveying cut tobacco in one direction, means pivotally mounting each of said conveyors adjacent one end thereof, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyors in a direction at right angles thereto, means including a movable frame for supporting said common supply band, means for moving said movable frame back and forth over said plurality of conveyors to supply cut tobacco thereto from said common supply band, and means operative to tilt any particular conveyor about its pivotal mounting out of the first mentioned conveying plane to enable said shaker conveyors to feed tobacco in an opposite direction, should the particular cigarette machine which it feeds, be shut down.

4. A device for feeding and distributing cut tobacco to a plurality of cigarette machines comprising a plurality

of shaker conveyors arranged in closely spaced relation and adapted to lie in a substantially horizontal plane for conveying cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyors in a direction at right angles thereto, means including a movable frame for supporting said common supply band, means for moving said movable frame back and forth over said plurality of conveyors to supply a stream of cut tobacco thereto from said common supply band, a pair of cooperating spiked rollers associated with the outlet end of each conveyor to assist in feeding cut tobacco to the respective cigarette machine and means operable to move any conveyor out of the first mentioned conveying plane should the respective cigarette machine which it supplies be rendered inoperative and thereby position said shaker conveyor to feed cut tobacco in an opposite direction.

5. The combination in a device for feeding and distributing cut tobacco to a plurality of receiving cigarette machines of a plurality of separate shaker conveyors arranged in closely spaced relation in a horizontal plane to feed cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means including a common vibrating frame for simultaneously effecting the vibration of all of said shaker conveyors, a common supply band, a movable support for said common supply band movable above said shaker conveyors and extending at right angles thereto, means for moving said movable support back and forth transversely across said plurality of separate conveyors to supply cut tobacco thereto from said common supply band, and a pair of cooperating spiked rollers associated with the outlet end of each shaker conveyor to assist in feeding cut tobacco to the respective cigarette machine, said spiked rollers being mounted beneath the discharge end of said shaker conveyors.

6. The combination in a device for feeding and distributing cut tobacco to a plurality of receiving cigarette machines of a plurality of separate shaker conveyors arranged in closely spaced relation in a horizontal plane to feed cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means including a common vibrating frame for simultaneously effecting the vibration of all of said conveyors, a common supply band, a movable support for said common supply band movable above said shaker conveyors and extending at right angles thereto, means for moving said movable support and supply band back and forth transversely across said plurality of separate conveyors to supply cut tobacco thereto from said common supply band, and means operable to move any of said shaker conveyors out of the first mentioned conveying plane should the respective cigarette machine which it supplies be rendered inoperative, to cause said shaker conveyors to feed cut tobacco in an opposite direction.

7. The combination in a device for feeding and distributing cut tobacco to a plurality of receiving cigarette machines of a plurality of separate shaker conveyors arranged in closely spaced relation in a horizontal plane to feed cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means including a common vibrating frame for simultaneously effecting the vibration of all of said conveyors, means pivotally mounting each of said conveyors adjacent one end thereof, a common supply band movable above said shaker conveyors and extending at right angles thereto, a movable support for said common supply band, means for moving said movable support back and forth transversely across said plurality of separate conveyors to supply cut tobacco thereto from said common supply band, and means operative to tilt any particular conveyor about its pivotal mounting out of the first mentioned conveying plane, should the particular cigarette machine which it feeds, be shut down, whereby said shaker conveyor of said shut down machine will feed cut tobacco in a direction opposite to the tobacco feed in said first mentioned direction.

8. A device for feeding and distributing cut tobacco to a plurality of cigarette machines comprising a plurality of shaker conveyors, means pivotally mounting each of said shaker conveyors arranged in closely spaced relation in a horizontal plane to feed cut tobacco in one direction adjacent one end thereof, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyor and extending at right angles thereto, means including a movable frame for supporting said common supply band movable above said shaker conveyors and extending at right angles thereto, means for moving said movable frame back and forth over said plurality of conveyors to supply cut tobacco thereto from said common supply band, and solenoid means connected to the free end of each conveyor, maintaining it in the said first mentioned conveying plane, and energized by the operative condition of the particular cigarette machine which such conveyor feeds, the arrangement functioning to lower the free end of any conveyor out of the conveying plane should the inoperative condition of a cigarette machine deenergize the associated solenoid means, whereby the cut tobacco will be fed in a direction opposite to the first mentioned direction of tobacco feed.

9. A device for feeding and distributing cut tobacco to a plurality of cigarette machines, comprising a plurality of shaker conveyors arranged in closely spaced relation in a substantially horizontal plane to feed cut tobacco in one direction, each conveyor being individual to a single cigarette machine, means for vibrating each of said conveyors, a common supply band movable above said shaker conveyors and extending at right angles thereto, means including a movable frame for supporting said common supply band, means for moving said movable frame and band back and forth over said plurality of conveyors to supply cut tobacco thereto from said common supply band, means operable to move any conveyor out of the first mentioned conveying plane, should the respective cigarette machine which it supplies be rendered inoperative, a plurality of roof-shaped covers disposed above the adjacent side walls of immediately adjacent conveyors, and a reversible roller mounted above each of said roof-shaped covers.

10. The feeding and distributing device according to claim 1, wherein an enclosing cover is provided for the device, and a dust-removing vacuum pipe line is connected to said enclosing cover.

References Cited in the file of this patent

UNITED STATES PATENTS

1,984,980	Muller	Dec. 18, 1934
2,100,878	Shallock	Nov. 30, 1937