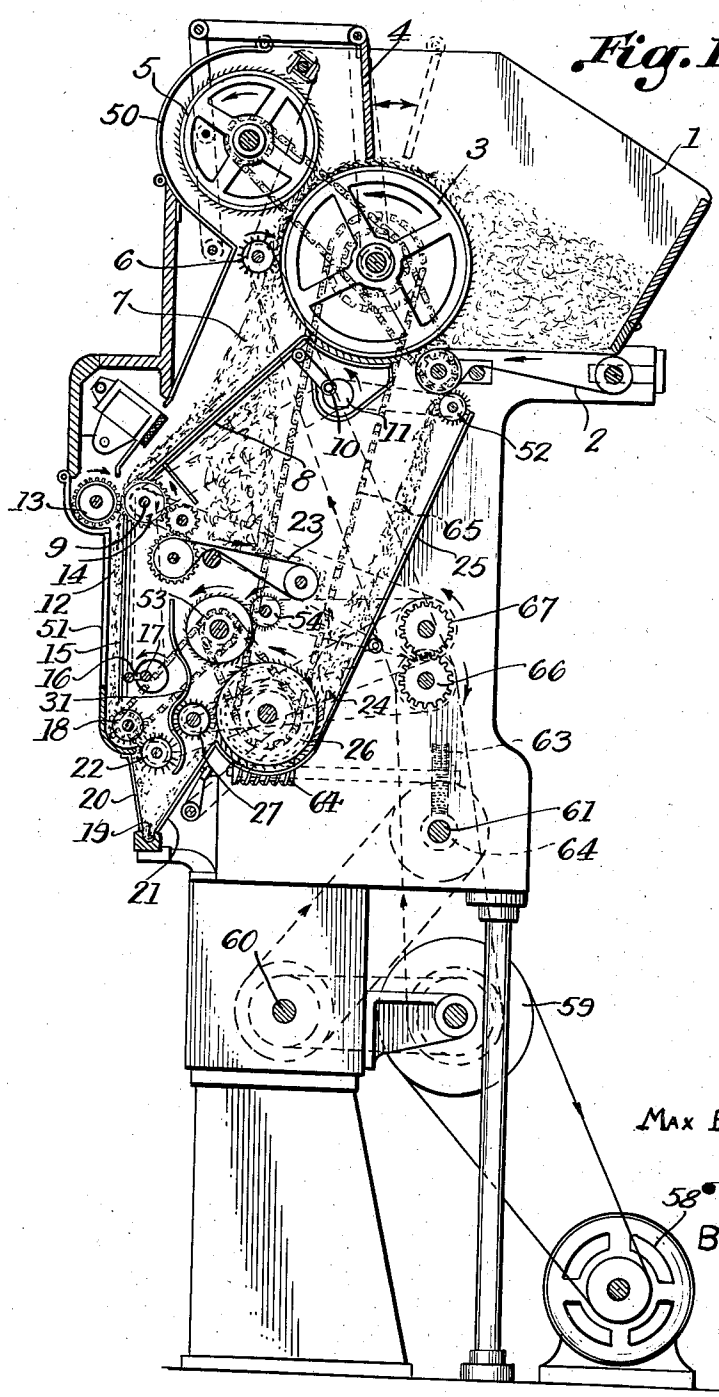
Nov. 25, 1941. M. P. E. HOHN 2,264,240

TOBACCO ROD

Filed Aug. 17, 1938 2 Sheets-Sheet 1

Fig. 1.



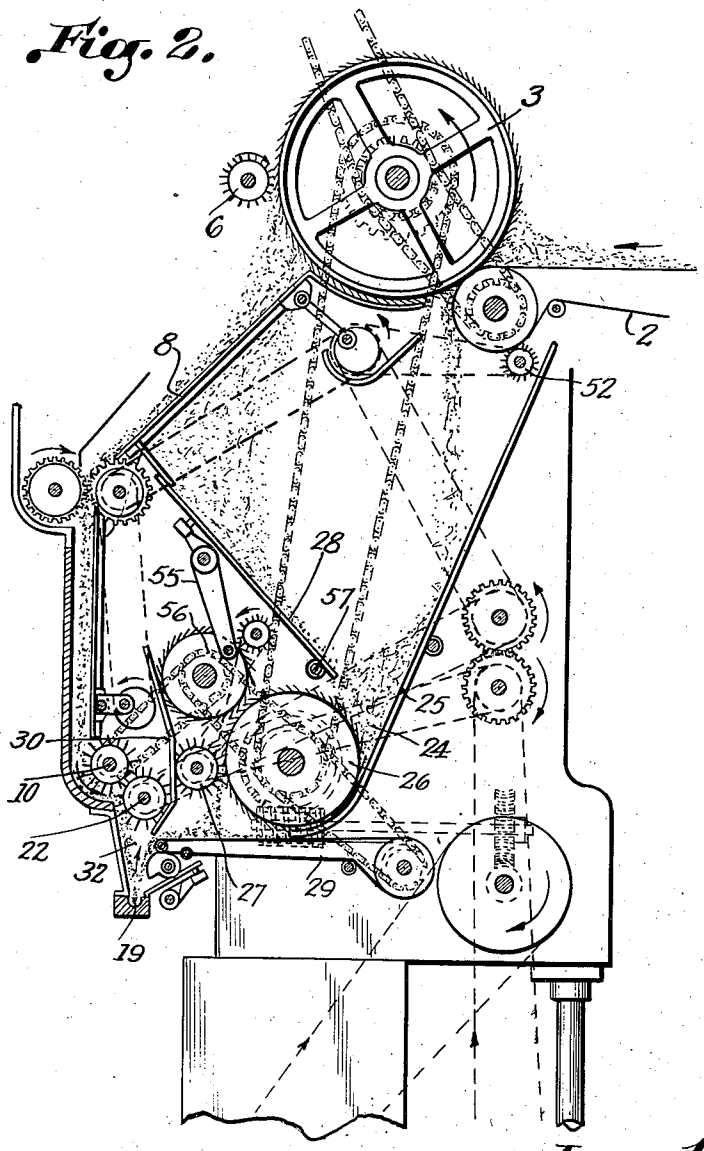
MAX PAUL ERNST HOHN
Inventor,
By: C. P. Goepel,
ATTORNEY.

Nov. 25, 1941. M. P. E. HOHN 2,264,240

TOBACCO ROD

Filed Aug. 17, 1938 2 Sheets-Sheet 2

Fig. 2.



Inventor.

MAX PAUL ERNST HOHN

By: C. P. Goepel.

ATTORNEY.

Patented Nov. 25, 1941

2,264,240

UNITED STATES PATENT OFFICE

2,264,240

TOBACCO ROD

Max Paul Ernst Hohn, Dresden-Weisser Hirsch, Germany, assignor, by mesne assignments, to J. C. Muller N. V., Rotterdam, Netherlands

Application August 17, 1938, Serial No. 225,375
In Germany August 20, 1937

5 Claims. (Cl. 131—110)

The present invention relates to a method and apparatus for forming tobacco rods and more particularly to the forming of continuous rods of loose tobacco which are later to be wrapped and cut to form cigarettes.

An object of the present invention is to form uniform rods of tobacco.

Another object is to accomplish uniform distribution of fine or short tobacco.

A further object is to remove the fine tobacco from the rod forming mat or fleece and to add the fine tobacco in uniform quantity to the tobacco fed to the rod forming device.

The cut tobacco which is used in forming the fillers or rods for cigarettes contains approximately 20 per cent of short tobacco. This short tobacco is distributed irregularly in the supply to the rod forming machine so that the tobacco in the rod forming groove is composed sometimes of small quantities and sometimes of large quantities of fine tobacco. The result of this is variation in weight and density between cigarettes. This results in unequal burning and lack of uniform flavor and other smoking qualities.

It is already known to pick up the feed tobacco from a moving web by means of a spiked roller and this picking operation eliminates a portion of the fine or short tobacco. It is also known to collect the short tobacco thus eliminated and either discard it or return it to the tobacco feed. This arrangement by no means accomplishes complete elimination of the short tobacco but the elimination is rather a matter of chance. Short tobacco always remains in considerable quantities in the matted tobacco which is picked up by the spiked roller.

A rod of entirely uniform character is obtained according to the present invention by removing practically all of the short tobacco and then adding short tobacco in regulated quantities from a constant supply to the tobacco fed to the rod forming device. The operation consists in sieving the tobacco after it has been picked out of the hopper. The sieve is preferably agitated to increase the effectiveness of the operation. By this means the removal of short tobacco is practically complete and constant. The tobacco picked from the hopper by means of the spiked rollers is in a loosened condition so that the sieving is a highly efficient manner of separating the short from the long strands.

The sieving may take place so that the elimination of short tobacco is performed only subsequent to the spiked rollers which operate in the tobacco feed, or a certain number of the particles of short tobacco may be removed at the feed where the spiked rollers fail to lift short strands and this discarded short tobacco may be added to the siftings from the main sieving operation.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a transverse vertical section taken through a device made according to the present invention, and

Figure 2 is a fragmentary transverse vertical section taken through a modified form of the machine.

Referring now to Figure 1, a tobacco hopper 1 is provided at the top of the machine. Tobacco deposited in this hopper rests upon the upper run of an endless conveyor belt 2 which is suitably mounted and driven in the direction of the arrow. Tobacco upon the belt 2 is carried into the spikes of the roller 3 which is rotated in the direction of the arrow and serves to pick tobacco from the belt 2. Tobacco carried upon the periphery of the roller 3 is equalized as to thickness by means of the hinged flap 4 which brushes against the surface of the roller. The flap 4 is oscillated to and from its dotted line position by well understood means in order to accomplish the smoothing of the mat of tobacco on the periphery of the roller 3. A more positive smoothing and thinning of the tobacco on the roller 3 takes place at the meeting with the periphery of the roller 5 which has spikes or teeth directed backward from the direction of rotation. This roller is driven in the direction of the arrow and has a smoothing function on the tobacco mat. The mat of tobacco which has been smoothed and thinned upon the roller 3 is picked from the spikes by means of a toothed roller 6 which accomplishes the function of a beater taking the tobacco from between the teeth of the roller 3 and hurling it in loose form downwardly. A baffle 50 is located on the machine partially around the smoothing roller 5 and then in straightened relation to form a guide channel for the tobacco beaten by the roller 6. The tobacco in loosened condition flows in a stream 7 down upon a vibrating sieve 8 which is pivotally mounted on the shaft 9 at one of its ends and which is attached to a crank 10 upon the shaft

11 by means of a connecting rod 33. The sieve 8 is inclined at an obtuse angle so that tobacco falling upon it slides down toward its pivoted end. When the shaft 11 is rotated the crank 10 and rod 33 operate to vibrate the sieve to loosen the tobacco further and improve the separating action.

The tobacco which slides from the lower end of the sieve 8 drops into the space between a pair of driven rollers 13 and 14. These rollers are toothed and serve to project the tobacco into a vertical chute 12. The forward wall of the chute 12 is composed of a plate 51 which extends partially around the roller 13 and then vertically downward and finally terminates in a curve extended partially around the spiked roller 18. The opposite wall of the chute 12 is composed of a plate 15, pivotally mounted at 9 and vibrated by means of a crank 17 and connecting rod 16. At the bottom of the chute 12 the tobacco is received by the spiked roller 18 which carries the tobacco to the picker 22 from which it is projected between baffles 20 and 21 into the rod forming channel or guide 19. The manner of operation of the rod forming device is well understood and usually includes an endless belt passing over a suitable set of guides to give its upper surface a U-shaped cross section.

The short tobacco which drops through the sieve 8 lands upon the upper run of a conveyor belt 23 which moves in the direction of the arrow and deposits tobacco in the space between the wall 25 of the machine and the periphery of the toothed roller 26. The tobacco accumulates at 24 and the supply is kept constant from the fine tobacco which drops from the belt 2 and from the siftings passing through the sieve 8. The tobacco on the belt 2 is, as before explained, lifted by the roller 3. Such of the short tobacco as is not matted is not lifted by the teeth of the roller 3 and either falls directly upon the wall 25 or else clings to the belt from which it is brushed by means of the roller 52. In any event, the short tobacco eliminated at this point drops down into the supply 24. With this combined feed of tobacco the mass 24 becomes a reservoir from which a constant amount of tobacco may be withdrawn. The roller 26 which is mounted adjacent the supply of short tobacco 24 is rotated in the direction of the arrow and picks up a constant quantity of tobacco which is brushed to a uniform layer by the roller 53. The roller 53 itself is kept clean by a brush 54. Tobacco brushed to a constant layer upon the periphery of the roller 26 is removed therefrom by the picker 27 which hurls the tobacco against the wall 21 whence it falls with the long tobacco into the rod forming channel 19. A baffle 31 is located in the machine between the short tobacco feeding mechanism and the long feeding tobacco mechanism. The baffle is shaped to permit close juxtaposition of the two mechanisms.

Referring now to Figure 2, it will be seen that the mechanism for handling the siftings has been varied. In place of the conveyor belt 23 of Figure 1, a baffle 28 is located to guide tobacco into the reservoir 24. This baffle 28 is vibrated by means of a pivoted arm 55 operating from a cam 56. The baffle itself is pivoted at its lower end at 57. Instead of lifting tobacco from the reservoir 24 and directly adding it to the rod forming channel the device according to Figure 2 deposits the tobacco picked up by the roller 26 upon the upper run of a conveyor belt 29. The conveyor belt conducts the tobacco to a position 32 where it is mixed with the long tobacco delivered from the picker 22. By delivering the short tobacco at this position a preliminary blending of long and short strands is accomplished whereby the rod eventually formed is more uniform in character. The location of parts of Figure 2, enables the baffle 31, which was used in the device of Figure 1, to be replaced by a baffle 30 of substantially straight shape. Because the tobacco is carried by the conveyor belt 29 the rollers 18, 22, 26 and 27 may all be spaced further apart so that the machine is less crowded and may be more readily built and repaired.

It will be seen that both of the contrivances above described are adapted to carry out the method of feeding a cigarette rod forming device which involves the removal of substantially all of the short tobacco, the removal of this short tobacco to a place of deposit, and finally the addition of regulated and constant quantities of this short tobacco to the long tobacco fed to the rod forming device.

Both of the forms of device shown are merely intended for use at the feeding position of a rod forming machine. The well known details of the rod forming device itself are omitted. Many of the details of the general feeding device are also omitted or shown only diagrammatically. The details of the driving mechanism are shown in dotted lines and will be readily understood by those skilled in this art. A motor 58 may be used as the source of all of the driving power. The motor may drive a pulley and counter-shaft designated generally at 59. From this counter-shaft a further drive may be taken to the shaft 60 from which in turn a shaft 61 is driven. The shaft 61 may carry a worm wheel 62 which drives the pinion 63 which in turn moves the worm 64. The worm 64 is shown in driving relation to the spiked roller 26. The spiked roller 3 is shown driven by means of the chain 65 from the same shaft as the roller 26. The drive for the conveyor belt 2 is taken also from the roller 3 as is the drive for the smoothing roller 5. The smoothing roller 53 and the roller 18 are also driven from the roller 26. The other rollers and shafts are driven from the pair of intergeared shafts 66 and 67 from which suitable belt and pulley drives operate the various rollers and shafts at the desired speeds. It will be understood that the details of these various driving connections are susceptible of wide variation and come within the scope of a mechanic familiar with this art.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A device for feeding loose tobacco to a rod-forming device, comprising a tobacco supplying hopper, picker mechanism for loosening tobacco supplied from said hopper, a vibratable sieve disposed to receive said loosened tobacco from said picker mechanism to separate the short tobacco strands from the long strands of tobacco, means for feeding said long strands to said rod forming device, means disposed below said sieve for collecting the short tobacco, and separate means for feeding the short tobacco to said rod-forming device.

2. A device for feeding tobacco to a rod-form-

ing device, comprising a hopper, picker mechanism for loosening tobacco supplied from said hopper, an obliquely disposed vibratable sieve disposed to receive said loosened tobacco from said picker mechanism, to separate the short tobacco from the long tobacco, channel means disposed at the lower end of said sieve to receive the long tobacco from the sieve, collecting means beneath said sieve for storing quantities of short tobacco, means for feeding said long tobacco to said rod-forming device, and separate means for feeding short tobacco at a uniform rate to said rod-forming device, thereby forming an intimate mixture of definite proportions of the long and short tobacco fibres.

3. A device for feeding loose tobacco to a rod-forming device, comprising a supply source for cut tobacco, a picker mechanism for loosening the tobacco supplied from said source, a vibratable sieve disposed below said picker mechanism to separate short tobacco from the long tobacco, means disposed at the bottom of said supply source for discharging the short tobacco not picked up by said picker mechanism, collecting means below said sieve for receiving short tobacco both from said sieve and from said discharge means, to provide a supply of short tobacco fibres, means for feeding said long tobacco to said rod-forming device, and separate means for simultaneously feeding short tobacco from said collecting means to said rod-forming device.

4. In a device for feeding loose tobacco to a rod-forming unit, the combination of tobacco loosening means, a sieve disposed to receive the loosened tobacco from said loosening means for separating the short tobacco from the long tobacco, means for discharging said long tobacco from the top of the said sieve, means below said sieve for collecting short tobacco in a constant supply, channel means adjacent said sieve for feeding said long tobacco into the rod-forming unit, said channel means including a vibratable member extending substantially the total length of the channel to facilitate feeding of said long tobacco, and means for feeding short tobacco at a uniform rate from said collecting means to said rod-forming device.

5. In a device for feeding loose tobacco to a rod-forming unit, the combination of tobacco loosening means, a vibratable sieve of uniform mesh obliquely disposed and adapted to receive the loosened tobacco from said loosening means, said sieve separating short tobacco particles from the long tobacco, means for collecting the separated short tobacco, a vibratable baffle adjacent the lower end of said sieve and extending beneath the sieve to feed the short tobacco falling thereon in a constant supply to said collecting means, and means to receive the long tobacco from the top surface of the inclined sieve.

MAX PAUL ERNST HOHN.