F. S. SMITH.

METHOD OF TREATING TOBACCO.

APPLICATION FILED MAR. 9, 1909.

924,284. Patented June 8, 1909.

FIG. I.

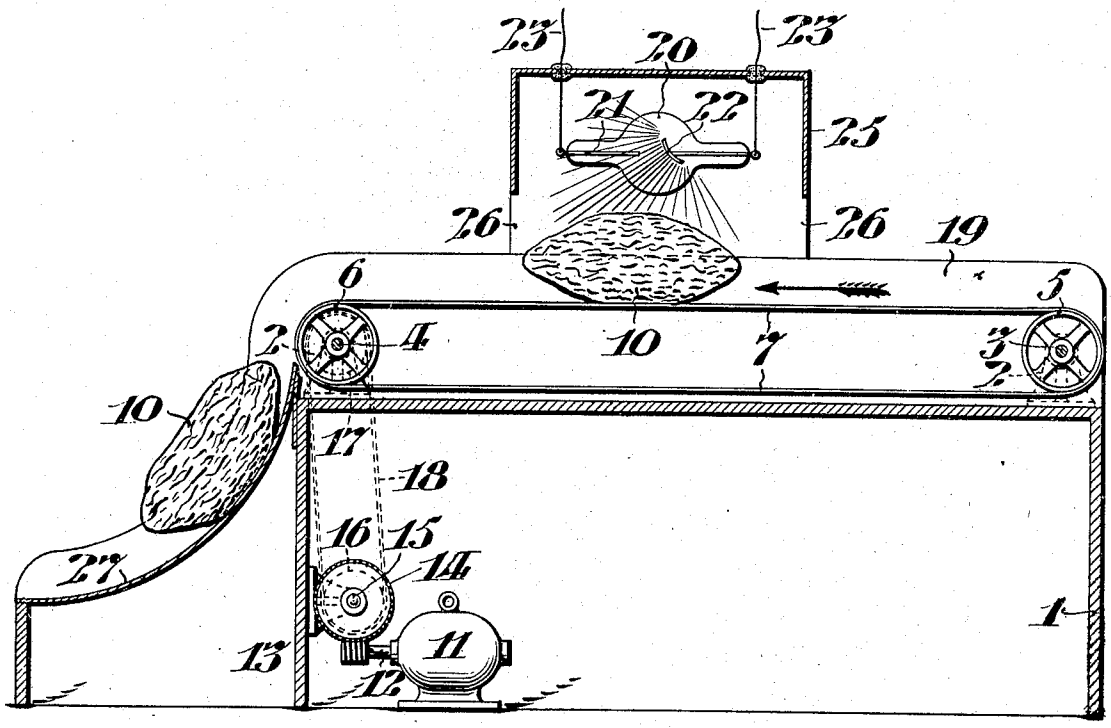
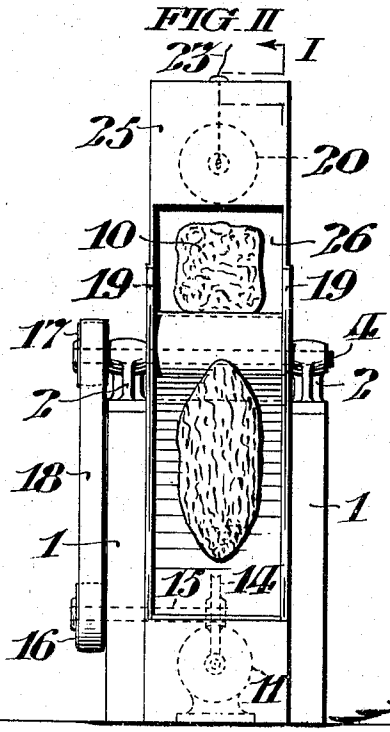


FIG. II



WITNESSES:

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METHOD OF TREATING TOBACCO.

No. 924,284. Specification of Letters Patent. Patented June 8, 1909.

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To all whom it may concern:

Be it known that I, FRANKLIN S. SMITH, a citizen of the United States, residing in Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Method of Treating Tobacco, of which the following is a specification.

It is known among dealers in tobacco and the manufacturers of products from tobacco that in the course of a year large quantities of tobacco are destroyed by small insects, the chief of which possibly is *Lasiderma serricorna*, commonly known as the cigarrete beetle. In addition to this beetle, however, there are probably one hundred and fifty other small insect creatures which prey upon tobacco and occasion its injury if not destruction. The result of the devestating action of these parasitic insects is the destruction of millions of dollars' worth of tobacco during each year.

It is the object of this invention to subject tobacco to a treatment which not only will destroy these insects but will also destroy their eggs, the larvæ, and the pupæ and thus preserve the tobacco for an indefinite period. It is necessary that this treatment of the tobacco for the purpose stated shall itself have no deleterious or injurious effect upon tobacco.

I have discovered the fact that tobacco may be subjected to the action and effect of X-rays, which occasion the destruction of the eggs, the larvæ, and the pupæ and the adult insects which are destructive of tobacco without injury or danger of causing deterioration.

Although I have shown and illustrated in my drawings a convenient means of supporting the tobacco in position to be acted upon by the rays of an X-ray tube, yet it will be understood that my invention is not limited to any particular means for bringing it within the action or sphere of influence of the rays.

In the drawings I have illustrated means for occasioning the travel of the tobacco past an X-ray tube but if desired the tobacco may be placed so as to be acted upon by the rays which radiate from the said tube and allowed to remain stationary for such a period of time as may be necessary to secure the desired result; namely, the destruction of the destructive insects themselves, their eggs, larvæ and pupæ.

In the drawings a convenient embodiment of means for carrying out my invention is shown.

Figure I is a section on the line I—I of Fig. II of the apparatus for practicing my invention; and Fig. II is an end elevation of the same looking to the right in Fig. I.

In the drawings:—1 designates a support upon which brackets 2 are mounted. These brackets are arranged in pairs as shown. Upon one of the pairs of brackets a shaft 3 is supported and on the other pair of said brackets a shaft 4 is supported. A band wheel 5 is supported upon and is adapted to rotate with the shaft 3, and the band wheel 6 is supported upon and adapted to rotate with the shaft 4. A continuous belt or band 7 is supported upon the wheels 5 and 6. The tobacco which it is desired to subject to the action of an X-ray tube is supported upon this belt and is carried within the region of the action of said rays. The tobacco subjected to the action of these rays may be in the form of carrots or bundles as indicated at 10 or may be in any other form or shape as desired or found convenient.

11 designates conventionally a motor upon the shaft 12 of which a worm gear 13 is secured which engages a gear wheel 14 to drive the same. The gear 14 is mounted upon a shaft 15 upon the end of which a band wheel 16 is supported. On one end of the shaft 4 a band wheel 17 is also mounted. The wheel 17 together with its supporting shaft and the parts carried thereby are driven by means of a driving band 18 which travels over the wheels 16 and 17. When the motor is in operation the driving band 18 is driven and as is obvious occasions the travel of the carrying band 7 supported upon the band wheels 5 and 6 so that tobacco may be carried thereby. The apparatus is provided with side boards 19 which act as guards to prevent the tobacco from falling or being knocked from the sides of the carrying belt 7.

The tobacco is carried by the supporting or carrying belt 7 underneath an X-ray tube 20. This X-ray tube is provided with the usual cathode 21 and anode 22. By means of wires 23 the tube is connected to a source of high potential electrical energy not shown. Any suitable source of electrical energy may be employed. In order to protect persons who may be employed about the apparatus, the X-ray tube is surrounded by means of an inverted leaden box 25 the opposite ends of which are open as indicated at 26. The

sides are closed. The open ends of the leaden box permit the tobacco to travel therethrough and thereunder as indicated most clearly in the drawings. At the delivery end of the apparatus, I have shown a guide or chute 27 for receiving the tobacco after it has been subjected to the action of the X-rays as described.

The anode 22 is arranged at an angle of about 45 degrees to the line of travel of the tobacco so that the rays extend principally in a direction transversely of the line of its travel.

The period of time necessary to subject the tobacco to the action of the X-rays varies with the condition of the tobacco which is being treated. I have found, however, that when the tobacco is in the most favorable condition the shortest period within which the eggs, larvæ, pupæ or the insects themselves can be thoroughly destroyed is approximately ten seconds. This period may vary, however, with the various conditions in which the tobacco may be at the time it is being treated.

Having thus described my invention, I claim:—

1. The method of treating tobacco which consists in placing the same in such relation to an X-ray tube that it is subjected to the action of the X-rays emanating therefrom.

2. The mehod of treating tobacco for the purpose of destroying the eggs, larvæ and pupæ of insects and also the insects themselves which may be found upon tobacco, which consists in occasioning its movement past an X-ray generator and permitting the rays which radiate from the said generator,to act upon the said tobacco and the speed of movement of the said tobacco past the said generator being such as to permit it to remain subject to the action of the said rays a sufficient time to occasion the destruction of the said eggs, larvæ, pupæ and insects.

3. The method of treating tobacco for the purpose of destroying the eggs, larvæ, and pupæ of the insects which are destructive of tobacco, and also the said insects, which consists in placing the said tobacco in such relation to an X-ray generator that the X-rays emanating therefrom pass through the said tobacco and permitting it to remain in such relation a sufficient time for the said rays to destroy the said eggs, larvæ, pupæ, or insects.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 6th day of March, A. D. 1909.

FRANKLIN S. SMITH.

In the presence of—
JOHN H. HOOE,
CARRIE E. KLEINFELDER.