

H. SUGGETT.

Improvement in Tobacco Dressing Machines.

No. 132,935.

Patented Nov. 12, 1872.

Fig. 1.

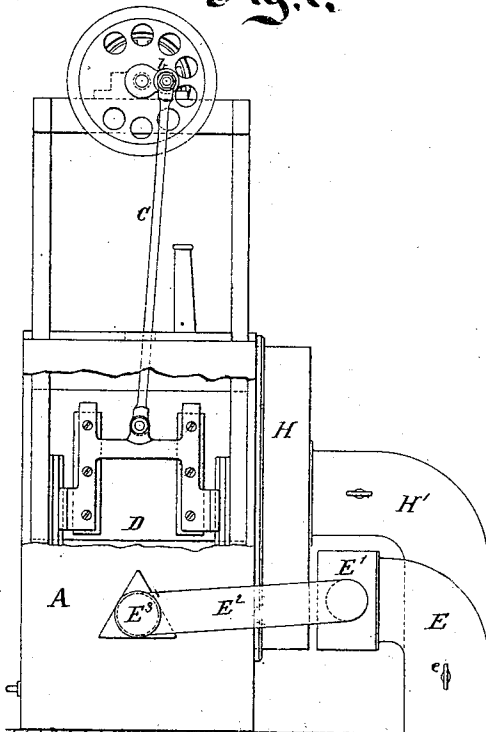


Fig. 2.

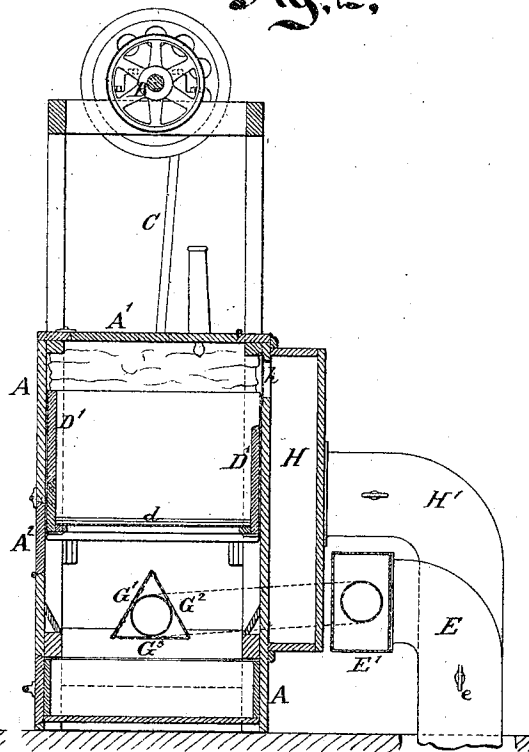


Fig. 3.

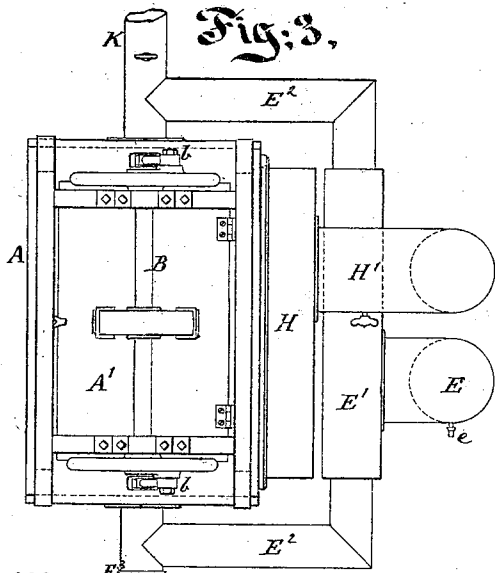
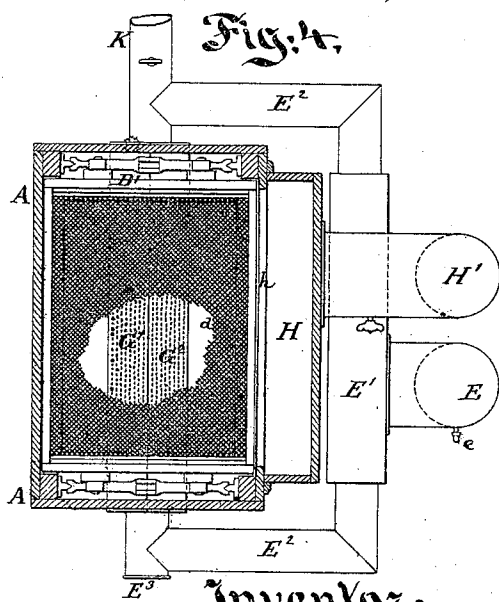


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY SUGGETT, OF NEW YORK, N. Y.

IMPROVEMENT IN TOBACCO-DRESSING MACHINES.

Specification forming part of Letters Patent No. 132,935, dated November 12, 1872.

To all whom it may concern:

Be it known that I, HENRY SUGGETT, of New York city, in the State of New York, have invented a certain Improvement in Apparatus for Dressing Tobacco and analogous uses, of which the following is a specification:

The tobacco, after being moistened and otherwise treated to prepare it for the cutting machinery, and being cut into what is known as fine-cut tobacco, requires to be loosened up and partially dried. This operation, technically known as dressing, has been usually performed by hand, and requires a peculiarly delicate manipulation.

I have devised mechanism for giving the proper loosening motion, and have arranged it in connection with apparatus for blowing through it with warm air for a period, and afterward with cold air. The result is a rapid and successful dressing of the peculiarly sensitive material, and a certainty that the drying operation is stopped and the material thoroughly cooled at the right point.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification.

Figure 1 is an end elevation of the machinery, with the adjacent air-passages and valves—a portion is broken away to show the work in the interior; Fig. 2 is a vertical section; Fig. 3 is a plan view; and Fig. 4, a horizontal section.

Similar letters of reference indicate like parts in all the figures.

A is a rigid casing, which forms the framework for the mechanism. B is a shaft, receiving a rapid rotary motion from a steam-engine or other means not represented. Two pitmen, C, connected to crank-pins *b* on the shaft, give a rapid vertically-reciprocating motion to a frame, D, which runs in guides in the interior of the casing A and carries a wire-work platform or sieve, *d*, on which the tobacco is placed to be treated. The mechanism is stopped for the introduction of the tobacco, and, after placing a suitable quantity lightly on the sieve *d*, a cover, A¹, is caused to close the top of the apparatus, and the mechanism is started. At the same time that the agitation is applied by the means of the rapidly-reciprocating sieve *d* a

current of warm air, which may be heated as high as 200° Fahrenheit without injury, is blown upward through the sieve *d*, and through the mass of tobacco which is shaken thereon. The warm air is driven from an air-heating furnace, of any ordinary or suitable construction, through the pipe E, and enters a box or casing, E¹, which distributes it through the pipes or extensions of the casing, marked E², so as to introduce it from each end simultaneously, and to induce a very equable flow of the drying air upward through the apparatus. In order to still further soften or diffuse the influence of this current, as also to provide properly for disposing of the dust and too fine material, which is liable to sift down from the tobacco during the treatment, I provide a double-inclined open-work casing, which may be of perforated sheet metal, arranged as indicated by G¹ G². These perforated sheets, with a suitable bottom, G³, form a triangular casing, from which the air is distributed equably upward to the sieve, and deflect away the fine material falling thereon, allowing it to lodge in a quiet place below, from which it may be removed at intervals. E³ is a removable cap, on removing which the air is allowed to escape freely into the room. It allows the inspection of the interior of the triangular casing G¹ G², &c., and the removal of any fine material which may occasionally find access through the perforations. A convenient means of removing such light material is to blow strongly, by means of the apparatus, into the opposite end of the casing. The blast of air, under these conditions, blows out strongly through the opening at E³ and removes any accumulation of solid matter.

I propose to employ any ordinary or suitable means of economizing the heat and modifying the condition of the air so as to favorably affect its action.

In the apparatus represented, H is a casing exterior to the casing A, and communicating therewith at the top, through which the warm air, after its upward passage through the tobacco, is led downward and discharged through a pipe, H', back again into the vicinity of the air-warming apparatus, to be again warmed and returned. I provide pockets, in which any dust which passes out with the air is allowed to rest and be removed at intervals, one

of which is represented at the base of the casing H. I prevent the escape of any considerable quantity of the shorts or fine solid matter with the air by interposing a wire-gauze screen between the casings A and H, as indicated by *h*, Fig. 4. Under ordinary conditions the single pocket in the base of the casing H will suffice to practically receive all the fine dust that passes this efficient strainer.

It is usual in what is termed the "casing" of tobacco, which is one of the preliminary treatments, to add about twenty-five per cent. of moisture. In the dressing operation proper or loosening of the material, about this amount may be assumed to be retained. About four-fifths of this should be driven out in the drying operation, and it is very important that it be expelled by a moderate heat and very uniformly, and that the drying be arrested at exactly the right point.

K is a pipe leading from a blower, not represented, and adapted to deliver cold air in a steady or strong current into the casing G. After the tobacco has been dressed and treated with the warm air to dry it until the operation is nearly completed the blower is set in operation, or, what is the same, a valve is opened and cold air is allowed to enter through the pipe K. The warm air is still allowed access through the passages E E', &c., to act in combination with the cold air for a brief period, after which the warm-air passage is closed by shutting a valve, *e*, and the cold air is allowed to act alone until the material is thoroughly cooled, after which the mechanism is stopped, the cover A¹ removed, and the completely-finished tobacco is carefully lifted out, its place supplied by another batch of material, and the round of operations repeated.

It may be useful under some conditions to supply blowing means to induce a proper movement of the warm air. However the circulation of the warm air be induced, I esteem it important that it be gentle and continuous. A too strong blast would be likely to too greatly derange the position of the finely-cut and light strips of the tobacco-leaf. With the gentle motion of the warm air, which my experiments have realized, the fine screen *h* remains unclogged, and the tobacco is freed to a moderate extent of the shorts which are incorporated among the longer strips.

I have made the apparatus with the sieve *d* about three feet long and two feet wide, and have given it a vertical reciprocating motion of six inches, giving the shaft B a speed of two hundred revolutions per minute.

I warm the air for the drying operation to about 180° Fahrenheit, or from that to 200° Fahrenheit. I treat the material with this warm air alone about two and a quarter minutes; then treat it with both warm and cold about thirty seconds; and then with cold air alone from one to two minutes. This latter period, as also the duration of all the others, depends partly on the quality and condition of the tobacco and partly on the temperature

and moisture of the atmosphere at the time the operation is conducted.

I use the single letter G to indicate the entire triangular casing G¹, &c. It will be understood that the lower side is tight, and that the upper inclined sides, being perforated and close to the sieve, distribute the air with a uniformity which cannot be attained by any screen placed further back.

Instead of putting the material in and taking it out through the top A¹ of the casing A, it may be desirable, and I prefer in most cases, to take it out through the side or front of the casing. The door A² is provided for this purpose, and it is of sufficient size and the parts are so arranged that the entire sieve *d* may be drawn out with the dressed material reposing thereon, and returned with a proper batch of fresh material. The door A² being closed again the apparatus is ready for action.

It is well to give a slower reciprocating motion to the sieve *d* during the treatment with the cold air—say about one hundred reciprocations per minute, or one half as fast as when treated with hot air. The blowing of the cold air through the apparatus of course lowers the temperature not only of the tobacco, but of the entire interior surfaces. So soon as the sieve *d* with its load is withdrawn the warm air should be turned on again. During the period while the tobacco is carefully removed from the sieve and a fresh batch properly distributed, the interior of the apparatus is becoming again warmed to the proper temperature. I prefer that something like one minute shall be thus consumed in warming the interior before the fresh batch is introduced.

In practice there may be two sieves, *d*, for each machine, and one may be prepared with a fresh load while the other is being agitated in the machine.

I apply the term box to an interior casing having four sides marked D', which moves up and down rapidly with the sieve *d* and its connections. The side adjacent to the casing H is sufficiently low to leave the screen on that side always uncovered. The opposite side and ends may be higher. To prevent the shorts from passing out over the ends I stretch canvas F up and down, which wrinkles as the box D' rises and straightens out into a plane or nearly plane condition as the box descends.

One or more thermometers should be mounted in proper positions, the bulb of each being inside and the scale outside, to afford a ready means of determining the temperature obtaining at different periods in the interior.

I claim as my invention—

1. The vertically-reciprocating sieve or perforated platform operating within inclosing walls, in combination with means for inducing a current of warm air through the same and through the material lying thereon, adapted to serve as herein specified.

2. In combination with the sieve *d* and casing A, the air-strainer *h*, and passage H H' for the purpose of conducting the air back to the

warming-furnace to be again reused in the apparatus, substantially as herein specified.

3. The inclined perforated surfaces G^1 arranged relatively to the blowing means and to the sieve d and its connections, as specified.

4. The method of dressing and drying tobacco by agitating it upon a perforated platform and forcing through the interstices, first, warm air at a temperature adapted to dry efficiently, then a mixture of warm and cold air, or air at a cooler temperature so as to gradu-

ally mellow the material, and afterward cold air so as to rapidly cool it, all substantially as herein set forth.

In testimony whereof I have hereunto set my hand this 5th day of April, 1872, in the presence of two subscribing witnesses.

HENRY SUGGETT.

Witnesses:

ARNOLD HÖRMANN,
WM. C. DEY.