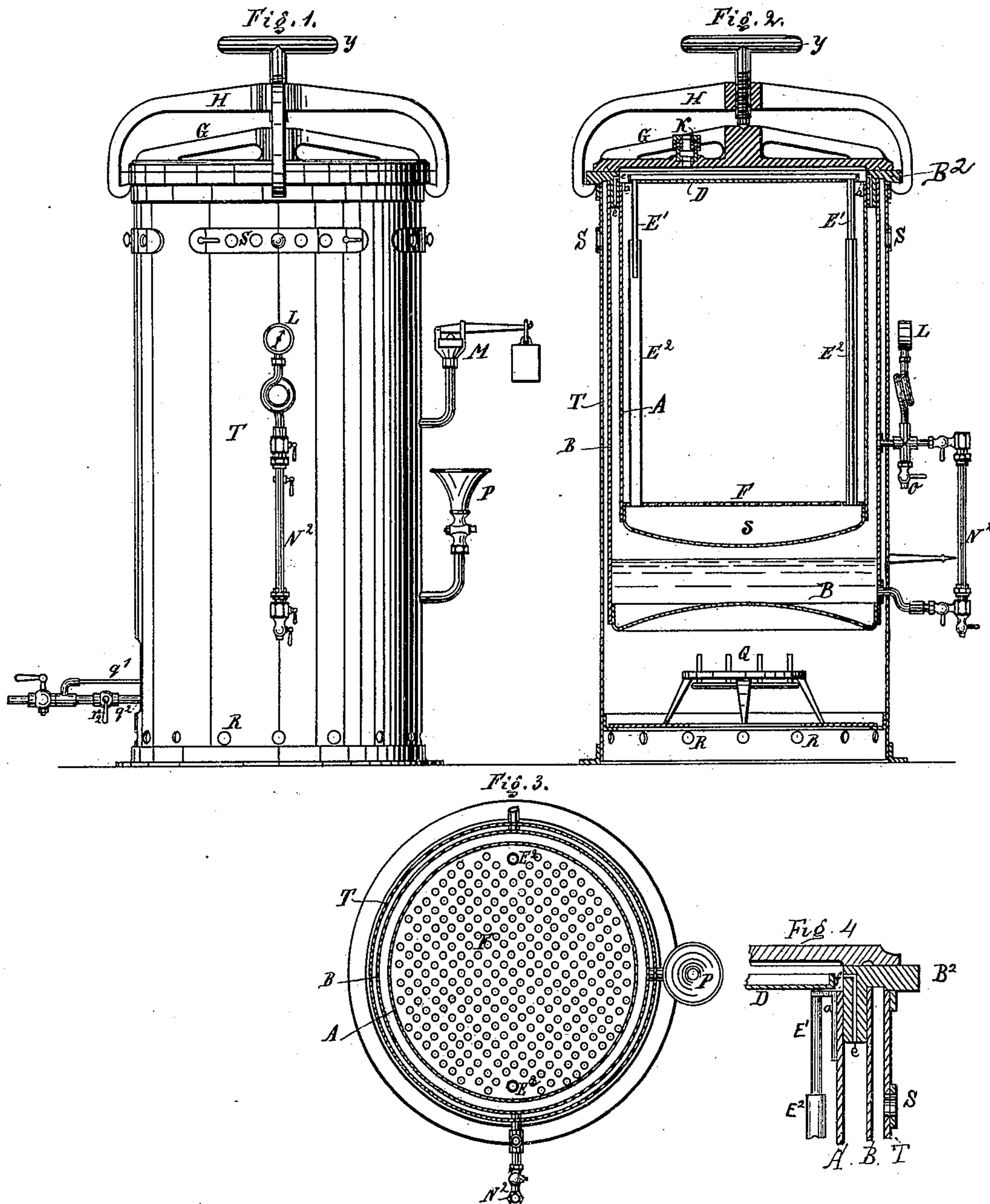


J. M. HENNINGSEN.  
Apparatus for Coloring Tobacco Leaves.

No. 234,474.

Patented Nov. 16, 1880.



Witnesses -  
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# UNITED STATES PATENT OFFICE.

JENS M. HENNINGSEN, OF COPENHAGEN, DENMARK, ASSIGNOR TO ERNST WENDEROTH, OF BREMEN, GERMANY.

## APPARATUS FOR COLORING TOBACCO-LEAVES.

SPECIFICATION forming part of Letters Patent No. 234,474, dated November 16, 1880.

Application filed August 23, 1879. Patented in Germany June 17, 1879.

*To all whom it may concern:*

Be it known that I, JENS MARTIN HENNINGSEN, of Copenhagen, in the Kingdom of Denmark, have invented Improvements in an Apparatus for Coloring Tobacco-Leaves, of which the following is a specification.

The present invention is an improvement upon the apparatus for coloring tobacco-leaves forming the subject-matter of a patent granted to Ernst Wenderoth July 16, 1878, No. 206,156.

The invention consists in the construction and combination of parts, which will be hereinafter more fully described, and then set forth in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical side elevation of an apparatus constructed according to my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a transverse section. Fig. 4 is a detail sectional view, representing the cup-shaped cover of the tobacco-receiver and means for conducting the nicotine vapors and steam into the same.

The letter A denotes the tobacco receiver or kettle, which has a perforated false bottom or plate, F, detachably fitted therein. The tobacco to be treated is placed upon this false bottom, after having been suitably moistened, and the receptacle covered by means of a plate having an upwardly-projecting outer rim or flange, so as to form a cup-shaped cover, D. This cover rests upon flanges *a*, projecting inwardly from the receptacle A, and is of such size and shape that an annular space is left between said cover and the top rim, B, of the steam-boiler for the upward passage of vapors, as hereinafter further referred to.

The cup-shaped cover is also provided with two or more tubes, E', depending from its under side, which enter corresponding tubes E<sup>2</sup>, rising from the false bottom F. These tubes E' E<sup>2</sup> extend along near the wall of the tobacco receiver or kettle A, and their object is to form a communication between the space or chamber *s* beneath the false bottom and the cup-shaped cover.

A metallic lid, G, fits in an air-tight manner on the top of the apparatus, and is retained in position by means of the yoke H and the screw *y*.

The steam boiler or generator B surrounds the fermenting-kettle on all sides except the top, and air-tight joints are produced between these two parts by means of a solid top rim, B<sup>2</sup>. The steam-boiler is provided with the necessary appendages, such as the manometer L, air-cock O, water-level indicator No. 2, safety-valve M, filling-pipe, and funnel P. Said filling-pipe may be provided with two cocks, so that the boiler can be supplied with water during the existence of steam-pressure therein.

As shown in Fig. 2, the boiler and fermenting-kettle are joined by means of the top rim, B<sup>2</sup>; but the air and steam tight connection may be effected by means of flanges on the two respective parts held in close contact with each other by the lid G and the fastening devices thereof. A sheet-metal shell or casing, T, surrounds the steam-boiler and serves to support the same, this shell being provided with the requisite air-openings, R and S, at the bottom and top.

The steam-boiler is heated by a gas-burning apparatus, Q, which consists of a series of burners communicating with a common supply-pipe, *q*<sup>2</sup>, and of an independent burner, one or more having a separate supply-pipe, *q*'.

When the necessary pressure has been produced in the fermenting-kettle, which pressure may vary according to the nature of the tobacco, the gas-supply pipe *q*<sup>2</sup> is closed by means of the cock *r*<sup>2</sup>, so that the pressure may be maintained exclusively by the burner communicating with the pipe *q*'. An opening, K, in the lid G, having a suitable stuffing-box, serves for the insertion of a thermometer into the space above the fermenting-kettle.

A very small opening, *e*, about the size of the point of a needle, located above the edge of the rim of the cover or cup-shaped plate D, will enable a portion of the steam generated in the boiler B to pass into the space between the cup-shaped cover D and the lid G. This steam, after having been introduced in the manner described, will condense between said cover and lid and pass down through the tubes E' and E<sup>2</sup> into the space below the perforated false bottom F.

The method may be described as follows: The external heat applied to the moistened

leaf-tobacco contained in the receiver A will cause a reaction of the nicotine, which will effect a cooling or darkening of the tobacco. As the nicotine is liberated or freed from the tobacco in the form of vapor, by reason of the heat existing in the tobacco-receiver, it will ascend and pass through the annular space into or above the cup-shaped cover D of the tobacco-receiver. The nicotine is liquefied in said cup-shaped cover, and unites with the steam entering through the small openings *e*, and as said steam condenses upon entering the space between the lid G and cover D, it necessarily follows that the nicotine, together with the condensed steam, will be carried downward through the tubes E' E<sup>2</sup> into the space beneath the perforated bottom F.

Having thus described the improvement made by me upon the apparatus of E. Wenderoth, I claim as new the following, viz:

1. In an apparatus for coloring and denico-

tinizing tobacco, the combination of the steam-boiler B, the tobacco-receiver A, arranged within the latter, and having small steam-inlet openings *e*, false perforated bottom F, and tubes E<sup>2</sup>, and the cup-shaped cover D, provided with pendent tubes E', with the outer shell, T, and cover G, substantially as and for the purpose set forth.

2. The combination of the cup-shaped cover D, having tubes E', and the perforated false bottom F, having tubes E<sup>2</sup>, with the tobacco-receiver A and steam-boiler B, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JENS MARTIN HENNINGSEN. [L. s.]

Witnesses:

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