

No. 791,803.

PATENTED JUNE 6, 1905.

D. J. MACLEAN.
DRYING APPARATUS.
APPLICATION FILED OCT. 6, 1904.

2 SHEETS—SHEET 1.

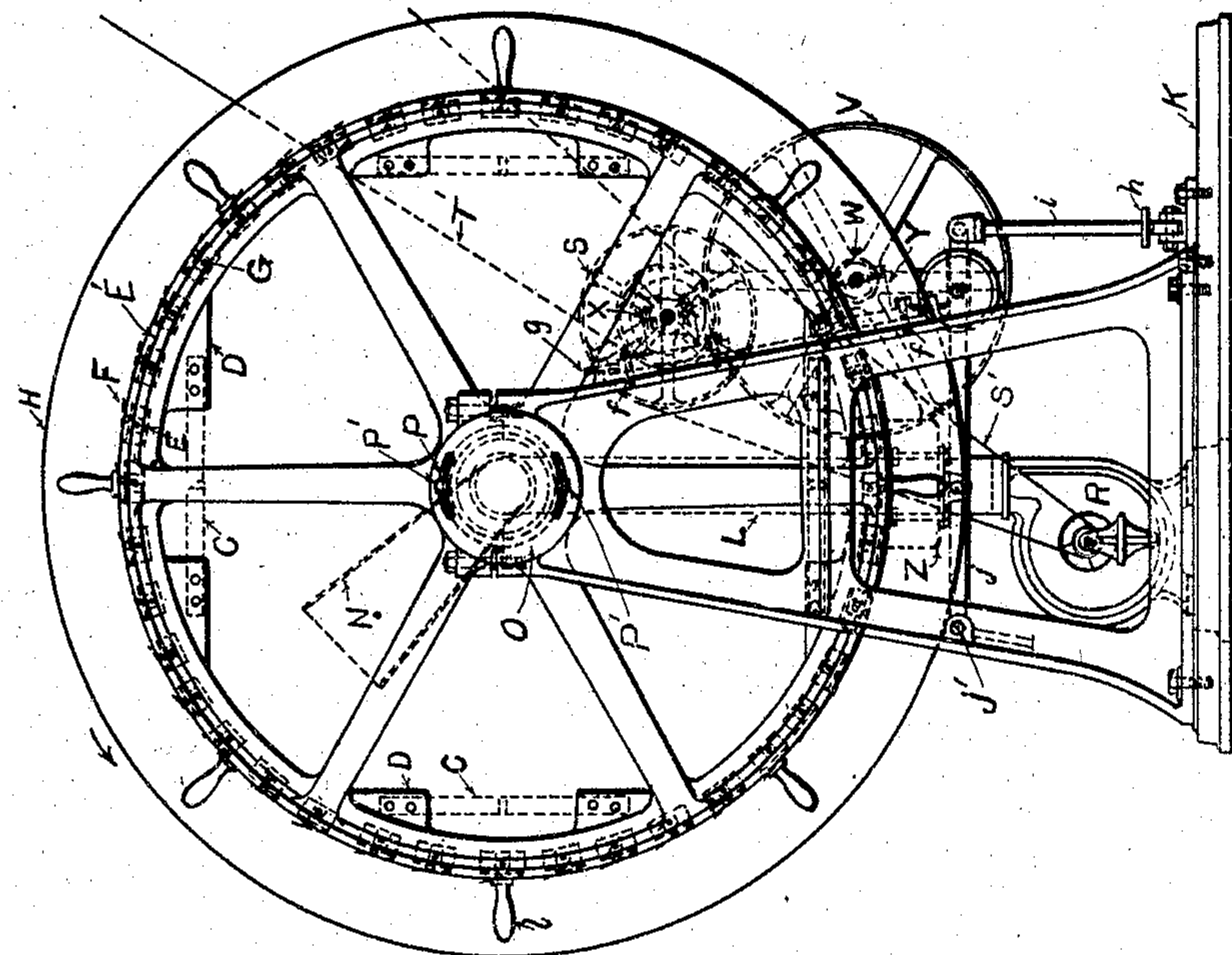


Fig. 2.

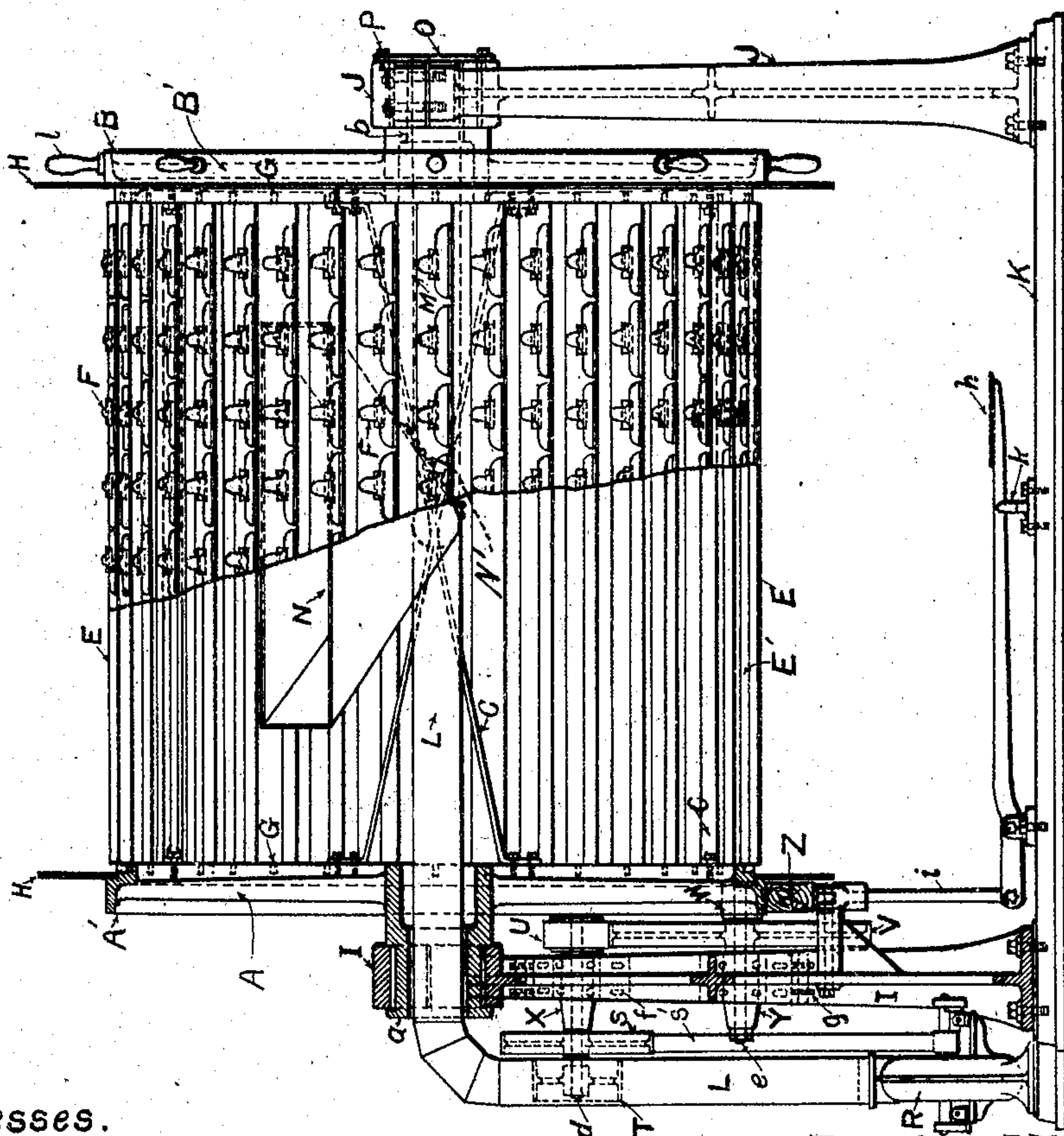


Fig. 1.

Witnesses.

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2 SHEETS—SHEET 2.

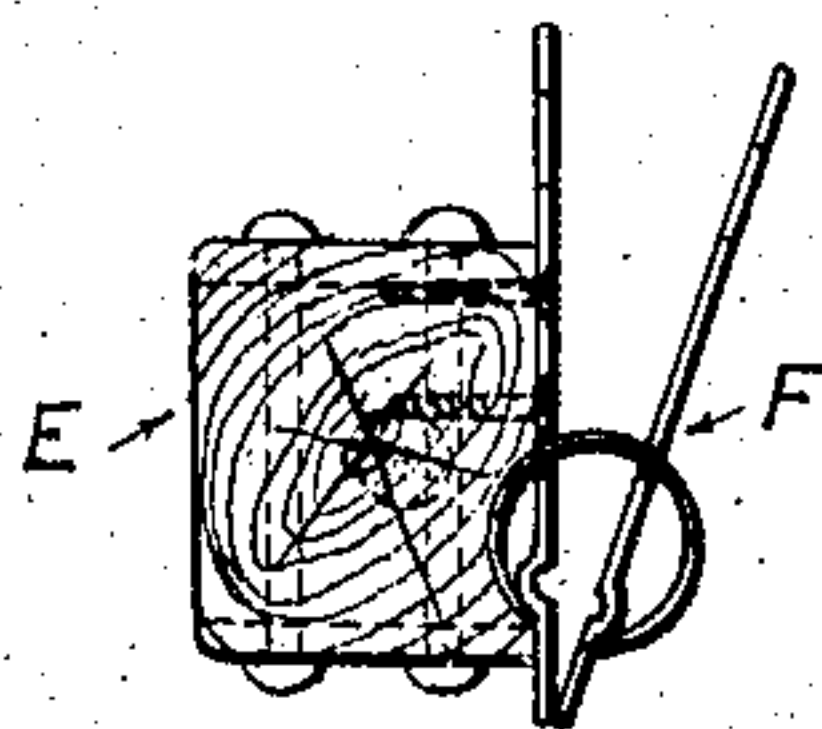


Fig. 4.

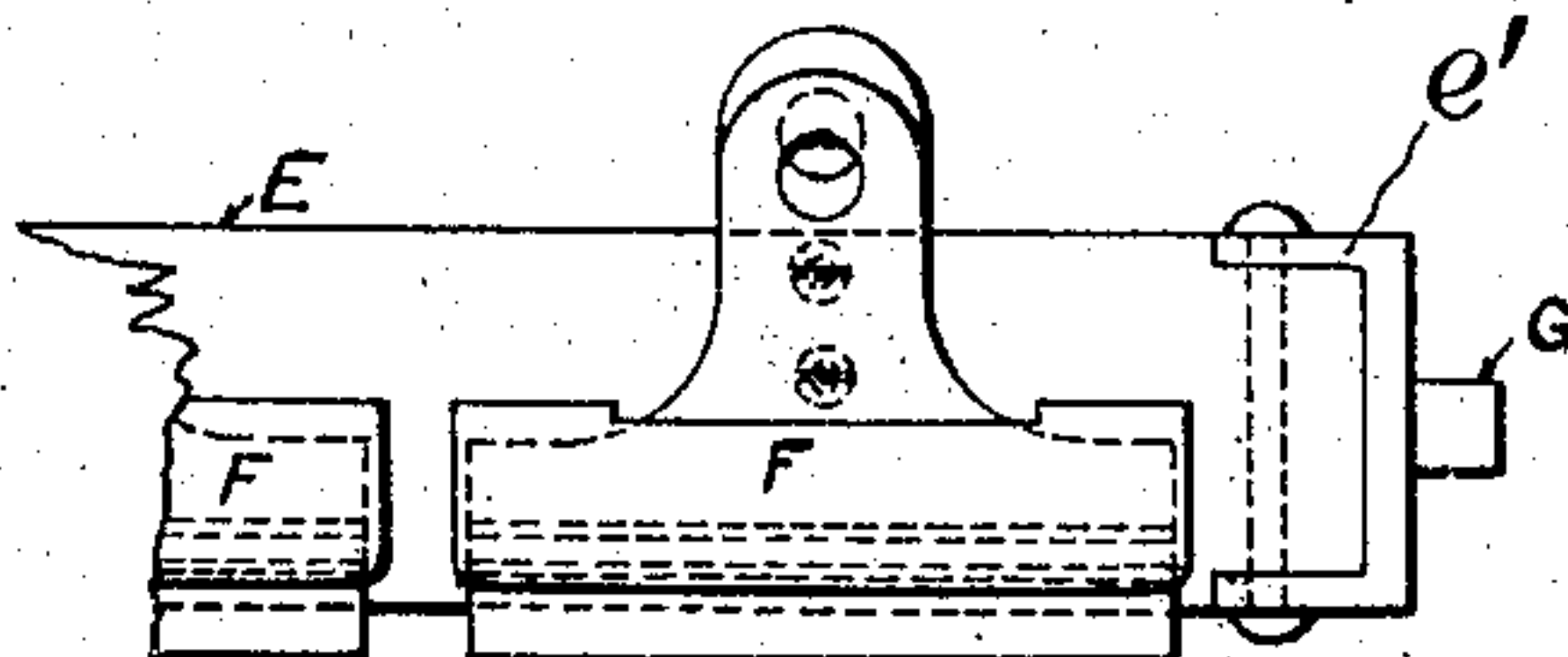


Fig. 5.

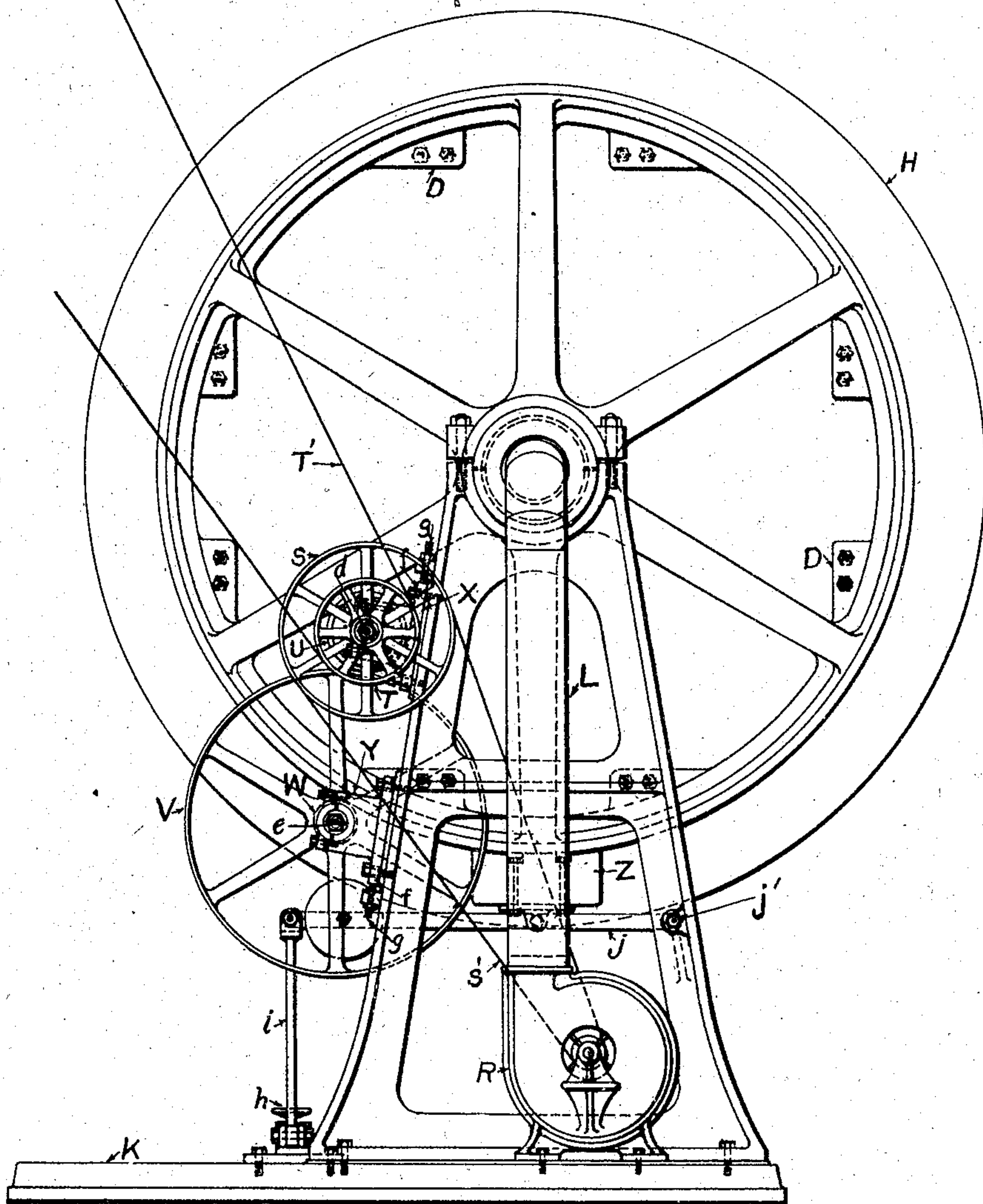


Fig. 3.

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UNITED STATES PATENT OFFICE.

DOUGLAS JERROLD MACLEAN, OF MONTREAL, CANADA.

DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 791,803, dated June 6, 1905.

Application filed October 6, 1904. Serial No. 227,368.

To all whom it may concern:

Be it known that I, DOUGLAS JERROLD MACLEAN, residing in the city of Montreal, in the district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Drying Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in drying apparatus, and relates particularly to means adapted to be employed in drying leaf-tobacco, either in separate leaves or in "hands;" and it consists in certain features of novelty in the construction of the apparatus hereinafter described, all as hereinafter more fully described, and specifically pointed out in the claims.

The object of the invention is to provide a rotatable drying apparatus which may be used in conjunction with a blast of air directed from the interior thereof to its exterior in such manner that tobacco secured upon the outer face of the rotatable drum hereinafter referred to shall be subjected to a blast of air which performs the double function of cleansing the tobacco by freeing it from dust, &c., and drying the leaves.

In the annexed drawings, in which similar letters of reference indicate corresponding parts in all the views, Figure 1 is a side elevational view shown partly in longitudinal section. Fig. 2 is an end elevational view looking at one end of the machine. Fig. 3 is an end elevational view looking toward the opposite end thereof. Fig. 4 is a transverse sectional view taken through one of the slats hereinafter referred to, showing the securing-clip in position thereon; and Fig. 5 is a broken view illustrating one of the slats with a clip secured thereon and showing the end casting carrying the trunnion-support for said slat.

Referring to the parts in detail, A and B are wheels or disks having preferably closed central portions or webs and provided with the angular flanges A', as best shown in the sectional portion of Fig. 1.

C C are four double cross braces or stays, which meet approximately centrally of the drum, hereinafter indicated, and are bolted or otherwise secured to the wheels or disks A B.

D D are webs which are connected with the disks A B and which extend inwardly therefrom, as best shown in Figs. 2 and 3, to which webs the cross braces or stays are attached.

E E are horizontal slats or bars, which are provided at their ends with castings e', which castings are provided with trunnions G, which are set into corresponding sockets in the wheels or disks A.

Secured upon the slats or bars E are numerous clips F, which are shown in detail in Figs. 4 and 5, which clips serve as securing means whereby the tobacco to be dried may be clamped in position upon the exterior of the drum formed by the combination of the disks A B and bars or slats E. It will be noted that the slats E are spaced apart so as to provide intermediate perimetrical openings E', extending substantially the length of the drum, through which openings air may pass freely from the interior to the exterior of the drum.

Secured upon the wheels or disks before referred to, and preferably bolted or otherwise secured in juxtaposition to the angular flanges A', are radial flanges H, which extend upwardly beyond the slats E and clips F, thereby serving as guiding means to keep tobacco held by the clips F from overhanging the ends of the drum.

The wheels or disks A and B are respectively provided with hubs or journals a and b, which serve as supporting means, which supporting means are hollowed for the purpose hereinafter indicated.

The journals a b are supported on pedestals J J, which rest upon the base-plate K, and said pedestals may be of any preferred construction adapted to serve as supporting means for said drum.

The journal a is hollow, as best shown in Fig. 1, to provide a passage for the blast-conduit L, which extends through said journal into the interior of the drum, and the journal b is hollow to permit the tube M to pass there-

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through, which tube M is projected into the interior of the drum sufficiently far to serve as a support for the inner end of the blast-conduit L and the discharge-nozzle N, which
 5 forms the end portion of said blast-conduit. The tube M is riveted to the nozzle N and is provided at its outer end with an annular flange O, which abuts against the pedestal J and is provided with the arc-shaped slots P,
 10 through which pass the set-screws P', said screws serving as securing means for locking the tube M in predetermined positions within the limits of said slots P, whereby the blast-nozzle N may be rotated within the drum to
 15 change the direction of the blast of air projected therethrough toward the slots E'. It will be noted that the said blast-nozzle N is directed toward the upper interior portion of the drum, and it will be evident that if a blast
 20 of air from the blower R is forced through the pipe L and blast-nozzle N it will serve to project the free ends of tobacco-leaves away from the drum when such leaves come into approximate alinement with said nozzle.

25 Supported by one of the pedestals J is a shaft-supporting bracket X, within which is supported the shaft d , upon which is carried the main driving-pulley S, connected by the belt S' with the fan R. Upon the shaft d is also carried the main driving-pulley T, which is actuated by the driving-belt T' from any suitable
 30 source of power. Upon the shaft d is also carried a friction-pulley U, which bears against the peripheral face of the larger friction-pulley V, which is carried upon the shaft e .

35 Upon the same shaft e with the pulley V is a small friction-wheel W, which is adapted to bear against the flange A' of the drum, whereby upon rotation of the main driving-pulley
 40 T said last-mentioned friction-pulley will be driven in contact with said flange A', thereby rotating the drum upon its supports.

It will be evident that a gearing may be substituted for the friction-pulleys described;
 45 but I prefer to use the pulleys, as I consider it a better construction.

The shaft e referred to is carried in a supporting-bracket Y, which, like the bracket X, is carried upon one of the pedestals J in proximity to the flange A', and set-screws project
 50 through suitable lugs on the pedestal into said brackets to serve as adjusting means whereby said brackets may be adjusted approximately vertically of the machine for well-understood purposes.

Coöperating with the flange A' is a brake Z, preferably of wood, which brake is adapted to bear against the peripheral face of said flange to serve as a means for checking the
 60 speed thereof. This brake may be of any preferred construction, but preferably comprises the lever h , the pivoted connecting-rod i , and pivoted supporting cross-rod j , which is pivoted at j' upon the pedestal J.

65 h is a spring-hook adapted to snap over the

lever h , so that the brake may be applied and the drum held in any desired position when not in operation.

70 l represents handles secured to the flange B' of the wheel or disk B, and said handles are adapted to serve as means for turning the drum manually when desired.

In the operation of the machine the spring-clips F serve as supporting means for the tobacco-leaves, and a sufficient supply of such
 75 leaves is secured in position to substantially cover the entire area of the drum, whereupon power is applied and the drum is slowly rotated by means of the friction driving means referred to, and a blast of air is directed from
 80 the blower R through the discharge-nozzle N to the upper inner portion of the drum. Assuming that the drum rotates continuously in the direction of the arrow shown in Fig. 2, it will be evident that tobacco-leaves will be
 85 lifted by the blast from the peripheral face of the drum at approximately the time when they will change their position under the influence of gravity in their passage around with the drum, and it is preferred that the
 90 blast be directed toward this particular portion of the drum, as it is believed that the blast will be most effective when directed in this manner, said blast passing from the discharge-nozzle N through the perimetrical
 95 openings in the drum and exerting its function in drying and cleansing the tobacco-leaves.

It will be obvious that the blower R may by any suitable conduit (not shown) be connected
 100 with a source of heat, and a blast of air at any predetermined temperature may be carried through said blower and by means of the conduit L and blast-nozzle N be directed
 105 against the tobacco-leaves for the purpose of more quickly drying such leaves if it shall be found desirable, though quite probably it will be found that a blast of air at approximately the temperature of the atmosphere will be
 110 quite sufficient for the purpose under normal conditions.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of
 115 the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—
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1. In a drying apparatus, a drum having perimetrical openings, spring-actuated clamps arranged exteriorly upon such drum, a hollow shaft extending into the drum, and a blast-conduit communicating with such shaft.
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2. In a drying apparatus, a drum having perimetrical openings, securing means arranged upon the exterior of such drum, a hollow shaft extending into the drum, a blast-conduit communicating with such shaft, and a blast-nozzle directed above the axis of said drum.

3. In a drying apparatus, a drum having closed heads and perimetrical openings, securing means arranged upon the exterior of such drum, a hollow shaft extending into the drum, and a blast-conduit communicating with such shaft.

4. In a drying apparatus, a drum having closed heads and perimetrical openings, clamping means arranged exteriorly of said drum, an adjustable blast-conduit projected into said drum, and a discharge-nozzle thereon adapted to direct a blast toward the upper portion of the drum.

5. In a drying apparatus, a drum having closed heads, annular flanges projecting from said heads and perimetrical openings, clamping means arranged exteriorly of said drum, an adjustable blast-conduit projected into said drum, and a discharge-nozzle thereon adapted to direct a blast toward the upper portion of the drum.

6. In a drying apparatus, a drum having annularly-flanged heads, with perimetrical openings between said heads, a longitudinally-projecting flange substantially concentric with the axis of said drum, an adjustable blast-conduit entering the drum, and a blast-nozzle connected with said adjustable conduit.

7. In a drying apparatus, a drum having perimetrical openings therethrough, clamps arranged between said openings, a hollow supporting-shaft entering one end of said drum and terminating therein, a supplemental supporting-shaft cooperating therewith, a discharge-nozzle connected with said hollow shaft and means for rotating said drum.

8. In a drying apparatus, a drum having perimetrical openings therethrough, clamps

secured upon the exterior of said drum between said openings, a hollow blast-conducting shaft entering said drum, a discharge-nozzle directed toward some of said openings above the axis of the drum and means for rotating the drum.

9. In a tobacco-drying machine, supporting means, a drum comprising flanged heads with slats connecting said heads, rotatable on said supporting means, securing means on said slats, a blast-conduit entering said drum and driving means cooperating therewith.

10. In a tobacco-drying machine, supporting means, a drum rotatable thereupon, said drum comprising flanged heads with slats connecting said heads, securing-clamps on said slats exterior of the drum and a blast-conduit entering said drum.

11. In a drying apparatus, a slotted drum, said drum having head members, a blast-conduit extending through one of said head members, a blast-nozzle at an angle to said conduit and a support for said conduit extending through the opposite head member.

12. In a drying apparatus, a slotted drum, said drum having head members, clamping means arranged exterior to said drum, a blast-conduit extending through one of said head members, a blast-nozzle at an angle to said conduit and a support for said conduit extending through the opposite head member.

13. In a drying apparatus, a slotted drum, said drum having head members, a blast-conduit extending through one of said head members, a blast-nozzle at an angle to said conduit, and directed above the axis of said drum, and a support for said conduit extending through the opposite head member.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

D. JERROLD MacLEAN.

Witnesses:

F. H. GIBBS,

H. R. ST. CHARLES.