

(No Model.)

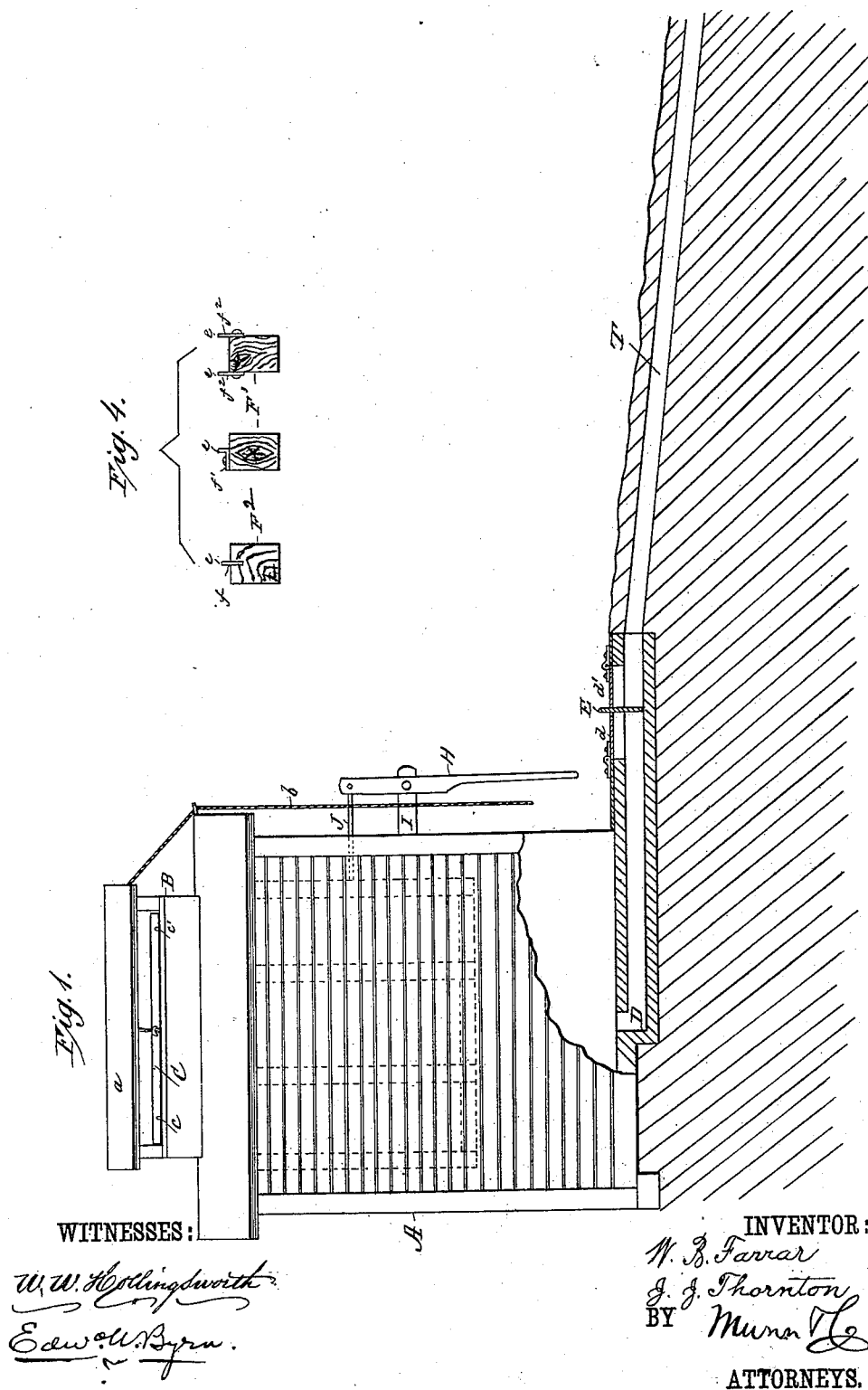
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W. B. FARRAR & J. J. THORNTON.

TOBACCO CURING BARN.

No. 342,591.

Patented May 25, 1886.



WITNESSES:

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Fig. 3.

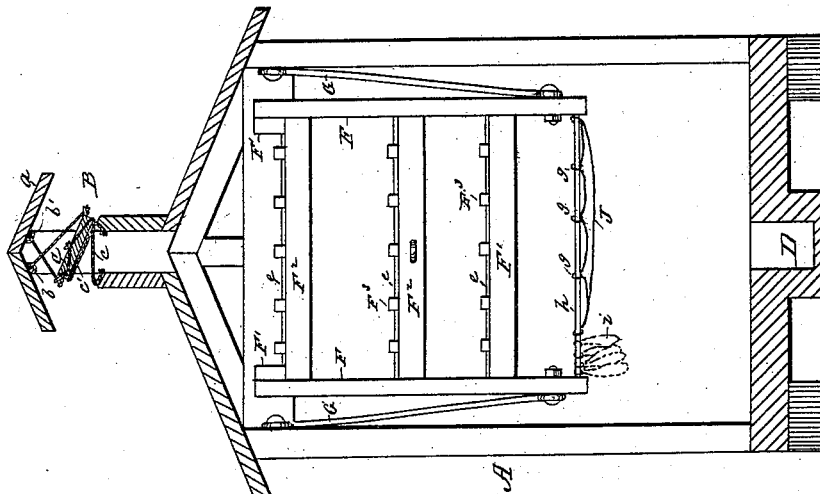
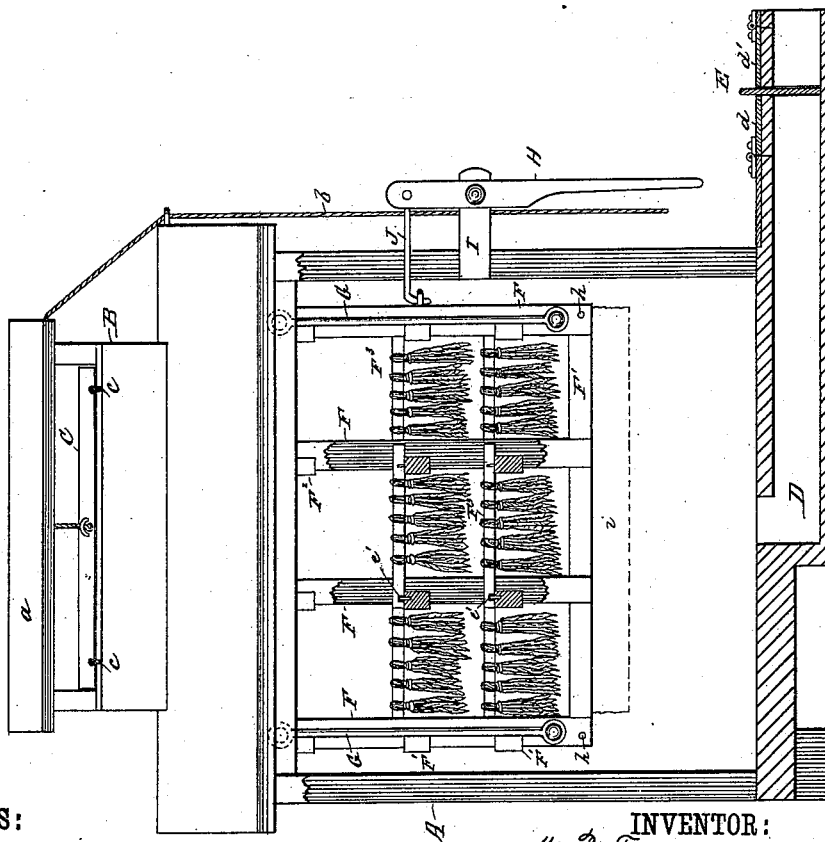


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM B. FARRAR AND JOHN J. THORNTON, OF GREENSBOROUGH, N. C.

TOBACCO-CURING BARN.

SPECIFICATION forming part of Letters Patent No. 342,591, dated May 25, 1886.

Application filed December 4, 1885. Serial No. 184,749. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM B. FARRAR, a citizen of the United States, residing at Greensborough, in the county of Guilford and State of North Carolina, and JOHN J. THORNTON, a subject of the Queen of Great Britain, residing at Greensborough, in the county of Guilford and State of North Carolina, have invented a new and useful Improvement in Tobacco-Curing Barns, of which the following is a description.

Figure 1 is a side elevation of the tobacco-barn with the lower portion broken open and shown in connection with the underground conduit. Fig. 2 is a side elevation of the barn with the whole side broken away and parts shown in section. Fig. 3 is a vertical transverse section through the barn, and Fig. 4 shows the different means of securing the sharp metal strips to the tier-poles or cross-bars F².

Our invention is in the nature of an improved construction of barn for curing and treating tobacco, the same being designed to facilitate or hasten the operation, to avoid scorching or scalding the leaf, and to secure a uniform bright color and sweet taste in curing, to avoid danger from fire, and to regulate at will the process of ordering or dampening the tobacco, so as to permit it to be handled without crushing the leaf.

In the drawings, A represents any ordinary form of barn constructed as a tight inclosure and having an elongated ventilating-flue, B, in the top with a stationary cap or cover, *a*, over the flue and a double-hinged door, C, beneath the cap and closing the top of the flue, and adapted to be opened upon either side by the separate cords *bb'*. This door is connected to both sides of the flue by short cords *c c'*, that form double-acting hinges, that allow either edge of the door to be raised, according to the direction of the wind, and makes a very much simpler and cheaper construction than double doors, and a construction in which all of the materials to be used are to be found on any farm or plantation, and requiring the use of little or no hardware.

In the middle of the barn-floor, or at any other preferred point, there opens an air con-

duit or trunk, D, which is boxed in to a point just outside of the barn, and is provided with a damper or cut-off, E, and doors *d* and *d'*, one upon each side of the cut-off. This trunk or conduit D communicates with a covered ditch or underground flue, T, whose sides are formed of the bare wet earth, and which is preferably inclined, so as to allow a certain amount of drainage. This damp-earth flue represents a most important feature of our invention, and we would here state that its use is only to furnish a certain quality of damp earthy air and not for a conduit for hot air, the barn being provided, as usual, with any heating appliances which may be placed therein, or with hot-air flues that lead from heating appliances outside. This damp-earth flue, however, is the result of the discovery that in curing tobacco, to secure the best results, it is not only desirable to moisten the air, as has been heretofore done by steam or vessels of water, but we have found that the earthy vapor from moist earth has a peculiarly beneficial effect in purifying and sweetening the tobacco, having some peculiar chemical effect in stimulating or modifying the chemical changes which take place in curing by rapidly changing the leaf from the green or black color to a bright yellow and purging it of its bitter taste and leaving it sweet and pure. Our earthy-vapor flue is therefore employed for the purpose of utilizing these functions of earthy damp air, and to that end the underground ditch is preferably about one hundred feet in length, (more or less,) and its incline is to permit it to be dampened from time to time by pouring water in through the door *d'* on one side of the cut-off, which water drains down the ditch and moistens its sides.

When the tobacco is hung up in the barn, the cut-off E in the trunk or conduit is raised, and the door C at the top of the barn is also opened. The hot air from the heating appliance then in rising causes a displacement of the air in the barn through the flue above, and by creating a suction through the earth-flue below draws a proportion of damp air from off the bare earth walls of the ditch into the barn, which being heavily charged with the vaporous emanations from the soil, comes in contact with the tobacco and produces the peculiarly

desirable effect heretofore mentioned, and facilitates the operation of curing, so as to permit the barn to be replenished two or three times within the space of time required for one filling by the old method, and this, too, with the additional advantage of securing a sweeter and purer quality and more uniform and brighter color of tobacco.

To secure a proper distribution of the air-currents through the mass of tobacco hung in the barn the racks upon which the tobacco is sustained are constructed in the form of a movable frame, $F F' F^2$, which is supported by hanger-rods $G G$, connected at their lower ends to said frame and at their upper ends to the timbers of the roof of the barn. This frame with the tobacco hung thereon is thus permitted to have an oscillating motion which agitates the air and releases the imprisoned air held by the bunches of tobacco, so as to permit a uniform drying effect.

To give an oscillating motion to the rack-frame a vertical lever, H , is fulcrumed to an offset, I , on the barn, and its upper end is connected by a pitman or connecting rod, J , to the rack, while its lower end is fashioned into a handle and extends down into range of easy operation by hand. The rack consists of vertical bars F and horizontal longitudinal bars F' and horizontal transverse rack-bars or tier-poles F^2 . On the upper edges of these transverse bars F^2 detachable sticks F^3 are supported, upon which latter the bunches of tobacco are hung. To prevent these sticks, with their loads of tobacco, from becoming detached and dropping their tobacco in the oscillating motion of the rack, these transverse bars F^2 are provided with a thin metal edge, e , of hoop-iron, or other suitable material, and the ends of the sticks are notched at e' , to fit over the edge of this thin metal strip, so as to prevent any accidental movement of the sticks in slipping off the supporting-bars. These strips e are set up edgewise, and for this purpose they may be set into a slit in the top of the bars, as at f , Fig. 4, or they may be flanged and nailed down, as at f' , or they may be tacked to the side of the bars, as at f^2 . These metal strips may be on all the transverse bars, but it is only necessary to put them on every other one of said bars.

It sometimes happens that when the tobacco is first hung in the barn the lower layer of tobacco is at times scorched or scalded by the heat below. To prevent this and cause the heat to be distributed a flexible screen, J , of fabric, Fig. 3, is hung by eyes or rings g on horizontal rods h , at the bottom of the rack, and is adapted to be disposed horizontally beneath the racks to protect the lower layer of tobacco from the excessive drying effect. One side of this screen is constructed as an open netting, i , which is distended beneath the racks when it is desired to have the heat

pass directly up through the tobacco, the netting serving in this case to prevent particles of tobacco from falling to the floor and becoming accidentally ignited from the fire below.

The method of operating the barn is as follows: In curing tobacco, after the tobacco has been hung upon the racks or tier-poles the cut-off E is opened, and also the door at the top of the flue in the roof of the barn. The tobacco is then subjected to the heat of the drying appliances, and also the earthy damp air, at a temperature of about 110° for a certain length of time, dependent upon the condition of the tobacco. The temperature is then reduced to about 85° or 90° , and maintained there until the tobacco assumes a proper bright yellow color. The temperature is then increased until the tobacco becomes gummy. We then close the cut-off E and open door d and continue the heat, and, no more damp air being now admitted, the substance of the sticky coating is dried into the tobacco, thus preserving its flavor and quality. Now, to "order" or dampen the tobacco so that it can be handled without being crumbled, we remove or shut off the source of heat and open the damp-air gate E , and allow the damp air to fill the barn until the dry air has been all displaced. Then the door at the top of the roof is closed, and the damp-air flue is left in open communication with the barn, which soon brings the leaves to a tough and moist condition, in which it can be handled.

The alternation of the drying and "ordering" process may be repeated as often as desired.

Having thus described our invention, what we claim as new is—

1. A tobacco-barn having an underground conduit for supplying damp earthy air to the same, whose walls are composed of damp earth, the said conduit being provided with a cut-off, substantially as and for the purpose described.

2. A tobacco-barn having a conduit for supplying damp earthy air to the same, whose walls are composed of damp earth, the said conduit being provided with a cut-off with doors upon each side of the same, substantially as described.

3. The rack-bars or tier-poles of a tobacco-barn having their strips set vertically, in combination with the tobacco-sticks having notches cut in the said sticks for fitting over the thin strips to prevent the displacement of the sticks, as described.

4. The combination, with the tobacco-barn and its suspending-racks or tier-poles, of a flexible horizontal screen made of fabric and supported upon guide-rods, as and for the purpose described.

5. The combination, with the tobacco-barn and its suspending-racks or tier-poles, of an open netting suspended horizontally beneath

the tobacco-racks, as and for the purpose described.

6. The combination, with the tobacco-barn and its suspending-racks or tier-poles, of a
5 combined net and screen suspended horizontally beneath the racks of tobacco, the net and screen being fastened together at their edges, whereby when one of them is distended

beneath the racks the other is folded, substantially as described.

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Witnesses:

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CHAS. E. HOLTON.