J. L. ADAMS & J. G. BLONDIN.

DRIERS.

No. 181,122. Patented Aug. 15, 1876.

Fig. 1.

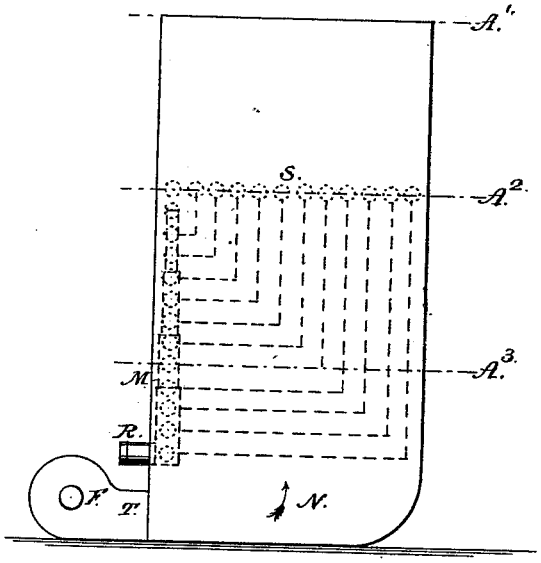


Fig. 2

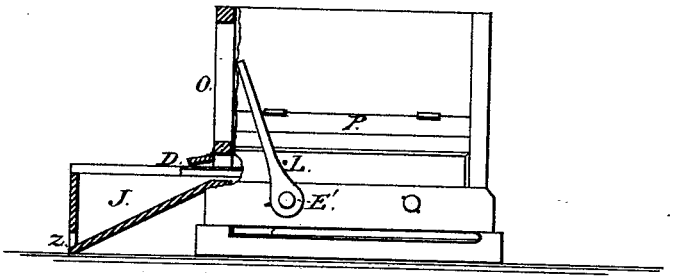


Fig. 5.

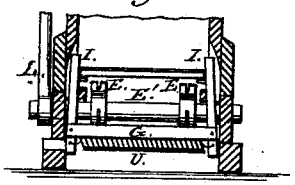


Fig. 3.

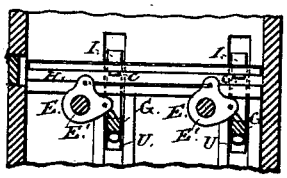
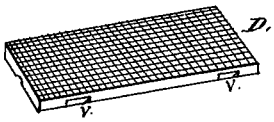


Fig. 4.



WITNESSES

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JAMES L. ADAMS AND JOSEPH G. BLONDIN, OF MONTREAL, QUEBEC, CANADA.

IMPROVEMENT IN DRIERS.

Specification forming part of Letters Patent No. **181,122**, dated August 15, 1876; application filed July 7, 1876.

To all whom it may concern:

Be it known that we, JAMES LAWRENCE ADAMS, of the city of Montreal, Province of Quebec, manufacturer, and JOSEPH GEORGE BLONDIN, engineer, of the same place, have invented certain new and useful Improvements in Driers for Drying Tobacco, Fruits, Renovating Feathers, &c.; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our improvement is such that a great deal of time is saved by its use, and it is always certain of drying evenly, and without injuring whatever substance or article is to be dried.

The first part of our invention relates to the construction of a drier by means of a combination of steam-heating pipes or drums, located in such a position in a drying room or compartment that air driven through the intervening spaces, by means of a blower or fanning-wheel, will be thoroughly heated, and then conveyed directly to the substances or articles to be dried, which will be arranged on suitable frames, as are commonly used.

The second part of our invention relates to the arrangement of a lever-power in combination with a device shaped like a dog, which, when operated by a lever, raises all the drying-frames, except the lowest in the compartment, up a few inches, so relieving the lower one of pressure that it may easily be removed from its place.

To better explain the nature of our invention we will refer to the accompanying drawing, which we desire to be taken as and to form a part of this specification.

Figure 1 represents our invention as occupying several floors of a building, the drying room or compartment extending from the basement to the upper story. Fig. 2 represents the exterior of the drying-compartment, lying between the floors A^1 and A^2 of the building in which the drier is located, and is the portion which is brought most into use, as the drying-frames are introduced at this point. Fig. 3 represents a mechanism we have provided for the purpose of raising the uppermost drying-frames in use, for the purpose of relieving the lowest one of pressure, so that it may easily be removed when desired. We have shown only half of it, as it would appear if looking from the inside. Fig. 5 shows a vertical sectional view of the same mechanism. Fig. 4 represents an ordinary drying-frame, with the exception of the notches V, the object of which we will hereafter describe.

Our drier may occupy either one or a number of floors. We have tested it practically in both ways; but in the drawings we show it as occupying a number of floors. On the first floor, or that portion represented under the dotted line A^3, we have located a fan or blower, for the purpose of drawing in air and forcing it up through the drier. In summer the air could be taken directly from the outside of the building; but in winter we propose to heat the air to a moderate temperature before introducing it into the blower. This is to be done by any suitable heating apparatus located in the same room with the blower, either by means of heating pipes or drums.

The air may be supplied to the room by simply opening a window, which, after having passed through the blower or fan F, passes through the pipe T, and from thence up through the steam-heating pipes S in the direction of the arrow N.

We have constructed and shown the steam-heating pipes S as occupying a portion of the drier below the second floor or A^3, and all of that portion between the second floor A^3 and third floor A^2. These steam-pipes are supplied with either live or exhaust steam.

The arrangement of the steam-heating pipes is optional with the constructer; but the idea is, of course, to produce as great a heating-surface in as small a space as possible. We arrange the pipes as shown by the dotted lines S, which all connect with, and run into, the main pipe M, whose diameter varies, being smallest at the top and largest at the bottom, as the pipes which connect with it at its upper end are much shorter than those which connect at its base.

In Fig. 2 we have shown that portion of the drier which lies between the floors A^1 and A^2, and which contains one of the most important features of our invention—viz., the mechanism which is clearly shown in Figs. 3 and 4, the

object of which, as before mentioned, is for the purpose of relieving the lower drying-frame of the weight of the upper ones. The drying-frames are introduced through the opening P, which is covered by a hanging door. The lower frame rests on the horizontal way H, only one side of which is shown. We have shown just the end of the lowest drying-frame projecting at D, there being placed at this point a hanging door similar to that shown at P. This door is directly in front of, and on a level with, the horizontal way H. L represents the lever, by means of which the mechanism shown in Figs. 3 and 5 is operated. When this lever is pushed down, it causes the bell-crank E, arranged on the shaft E′, to raise the transverse bars G, which, being attached to the uprights C, cause them to rise in the slots I, which, being cut in a wedge shape tapering toward the top, throws them forward, the small tooth on the dog or upright C catching the second drying-frame from the bottom in the slots V, raising all above the lowest one a few inches, so that it may easily be drawn out at the point D. When the lever is released, the uprights C are drawn back by means of the springs U, which run parallel directly under the transverse bars G, and are attached at the lower ends of the uprights C. The opening P being some three feet above the ways H, and the drying-frames generally being kept on a level with the opening P, and each frame is removed from the base at D, being replaced by one with a fresh supply of material to be dried at opening P. The frames remaining in the drier a certain length of time, pass from a comparatively mild to a more intense heat, this being the true principle of drying, as subjecting anything fresh directly to a sudden heat tends to cook or roast it. J represents a scrap-box, which is located directly under the door at D, so that any of the scraps which may fall from the frames as they are being removed from the drier will fall into it, and slide down to the opening Z at its base, where it can easily be removed.

The hot air, after passing through the drier, may be carried off into the open air by means of a flue entering at O, or any suitable point.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a drying apparatus, the combination of a fan or blower, F, steam-pipes S and M, as and for the purposes specified.

2. In a drying apparatus, the external arrangement of openings D and P, way H, lever L, and scrap-box J, as specified.

3. In a drying apparatus, the combination mechanism composed of shaft E′, horizontal transverse bar G, to which it is connected by bell-crank E, slot I, dog or upright C, provided with a claw or tooth, springs U, and lever L, all arranged substantially as and for the purposes specified and hereinbefore mentioned.

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