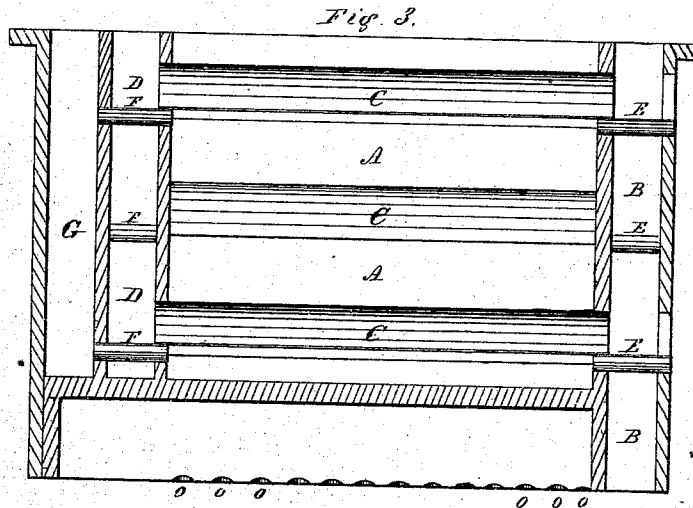
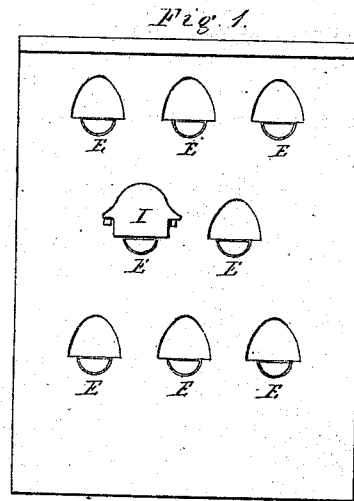
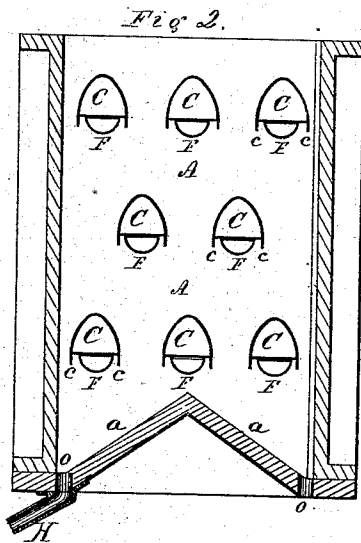


L. COLWELL.

Drying Apparatus for Animal Char.

No. 158,166.

Patented Dec. 29, 1874.



Witnesses,

Wendell R. Curtis
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Inventor.

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UNITED STATES PATENT OFFICE.

LEWIS COLWELL, OF NEW YORK, N. Y.

IMPROVEMENT IN DRYING APPARATUS FOR ANIMAL CHAR.

Specification forming part of Letters Patent No. **158,166**, dated December 29, 1874; application filed November 2, 1874.

To all whom it may concern:

Be it known that I, LEWIS COLWELL, of New York, in the county and State of New York, have invented certain new and useful Improvements in Drying Apparatus for Animal Char; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

After animal char has been used for the purpose of filtering and purifying substances that have been drained through it, before it can be again used it becomes necessary to dry and reburn it. The drying is usually done upon iron floors, situated above the kilns for reburning the char, and heated by flues passing underneath. The char is turned over and over by hand by workmen standing in it, which is a very disagreeable and laborious operation. When nearly or quite dry it is shoveled into the kilns below.

The object of my invention is to provide a better, less laborious, and more rapid method of drying the char and passing it to the kilns for reburning. My invention consists in an improved apparatus for automatically performing the drying operation, as will be hereinafter described.

In the accompanying drawings, Figure 1 is an end view of my improved apparatus. Fig. 2 is a cross-section through the middle, showing the form of the heating and ventilating pipes, and the end of the box beyond. Fig. 3 is a longitudinal section through the middle of the apparatus, showing the interior parts beyond.

A is a rectangular box or chamber, forming a receptacle for the wet char. B is a hot-air flue leading from the kilns below. C C are pipes leading through the chamber A from the flue B to the flue D, which carries the hot air and gases to the chimney, or out to the open air. The pipes C are of the form shown in the cross-section, Fig. 2. They have a round or oval form on top, and a flat bottom. At the sides the lips or flanges *e e* reach down be-

low the bottom of the tube, so as to form a channel or groove on the under side below the flat bottom. E E are short tubes, flat on the top and curved upon the bottom, reaching across the flue B from the air outside the apparatus to the groove or channel under the tubes C. They are entirely inclosed through the flue B. F F are similar tubes passing across the flue D. They connect the groove or channel under the tubes C with the upward flue G. The bottom of the chamber A is formed of two inclines, *a a*, sloping toward the sides, and forming channels, at the bottom of which are the discharge-openings *o o*, &c. These lead by suitable pipes to the kilns, where the char is reburned. It is intended to have a row of kilns under each side of the receptacle or box A, and to have a short pipe leading to each, as shown at H. The outlet of this pipe would be at the level of the top of the kiln, so it would form an automatic trap to keep it constantly full.

The operation of my invention is as follows: The wet char is placed in the chamber A, through which it descends as it becomes dry, and is drawn off through the openings *o o*. In descending, the char comes in contact with the pipes C, by which it is heated. It then passes down the sides, and partially around and under the lips *e e* of each pipe C, so as to leave a channel or hollow under the tube between the downward-projecting ribs. Through the opening thus made fresh air passes by means of the short tubes E and F, and the flue G. This carries off the moisture from the heated char and dries it. The char is first heated by the hot air from the kilns passing through the pipes C, and is then exposed while so heated to the current of air acting directly upon its surface in the channels under the pipes, so that it is dried as rapidly and thoroughly as possible.

For the purpose of getting at the flues for cleaning or repairing, the face of the apparatus is made with removable gates, as shown at I, in Fig. 1. The gates over the other openings are supposed to be removed.

Although my improved apparatus is intended to be used for drying animal char and other moist granular substances, it can also

be used as a cooler for any hot dry substances, by passing cold air only through the flues and pipes, by either natural or artificial draft.

What I claim as my invention is—

1. The pipe C, with its sides extended downward to form a channel under it, in combination with a drying apparatus, substantially as and for the purpose herein described.

2. The combination of the hot-air pipes C with the cold-air pipes E and F and the open

channel under the pipe C, substantially as herein described.

3. The combination of the pipes C, E, and F, with the flues B, D, and G, substantially as herein described.

LEWIS COLWELL.

Witnesses:

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