(No Model.)

A. W. BARRY.

APPARATUS FOR DRYING LUMBER, &c.

No. 262,558. Patented Aug. 15, 1882.

Fig. 1.

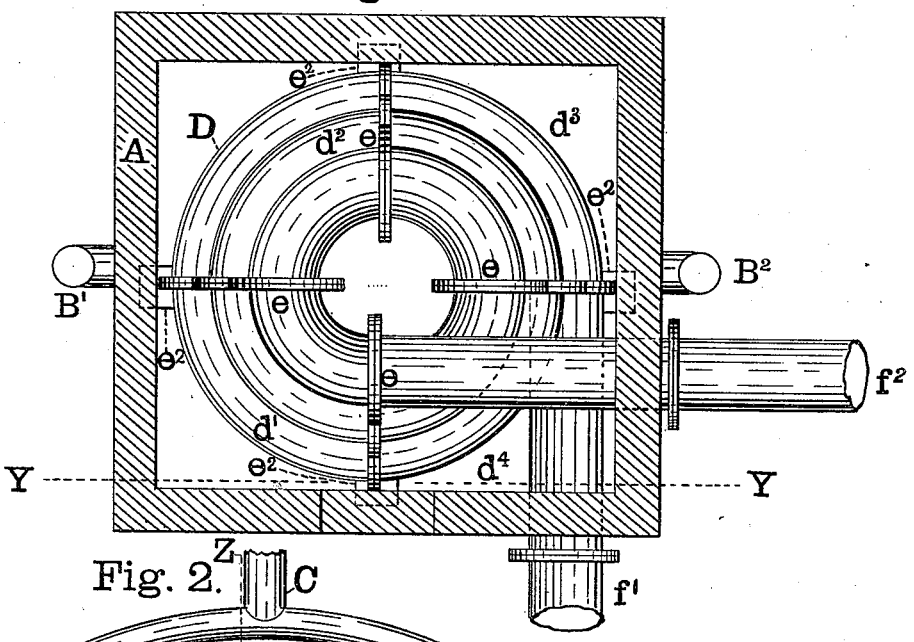


Fig. 2.

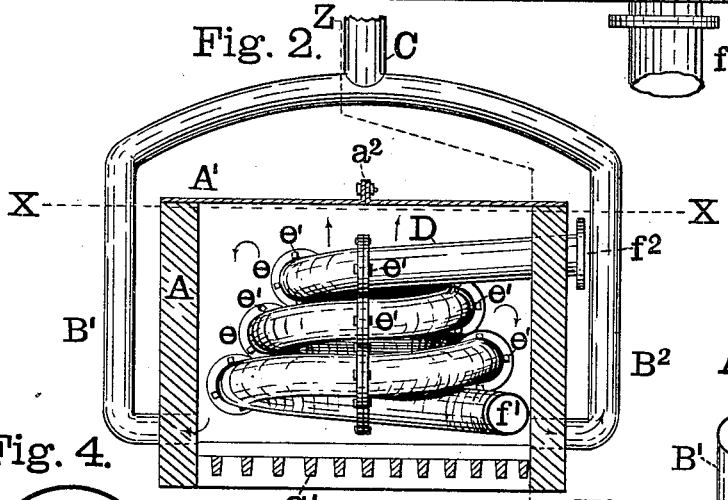


Fig. 4.

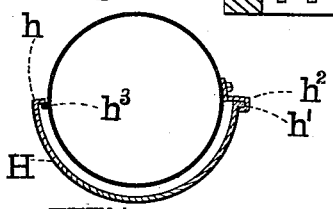
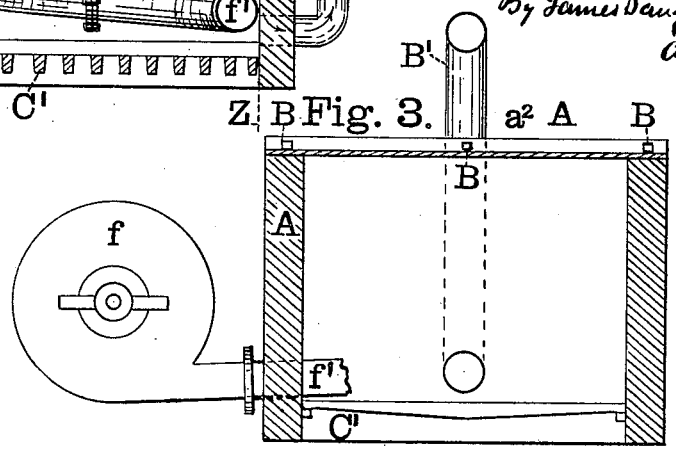


Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DRYING LUMBER, &c.

SPECIFICATION forming part of Letters Patent No. 262,558, dated August 15, 1882.

Application filed June 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALVIN W. BARRY, a citizen of the United States, residing in Corry, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Drying Lumber, &c., of which the following is a specification.

The object of my invention is to provide the means for rapidly drying lumber, tobacco, grain, or other materials, and for heating or warming buildings, &c.; and it consists of a cone-shaped spiral tube, of cast iron or other material, in combination with a furnace, a suitable air-forcing device, and other details of construction, all of which will be fully and clearly hereinafter shown by reference to the accompanying drawings, in which—

Figure 1 is a plan or top view of the coil, showing a section through the furnace in line X X, Fig. 2. Fig. 2 represents a side elevation of the coil and a section through the furnace in line Y Y, Fig. 1. Fig. 3 is a section through the furnace in line Z Z, Fig. 2, and also a side elevation of a suitable air-forcing device; and Fig. 4 is an enlarged cross-section through a portion of the lower coil and a fire-protecting cap arranged below it.

A is the walls of the furnace, of brick or other suitable material. It is provided with a top of cast-iron, A′, made in two parts, each part having a rib, a^2, so it can be bolted together by bolts B. This rib a^2 also increases the strength of the top and prevents the warping of the same by heat.

B′ B^2 are the flues for carrying off the products of combustion. They are both connected with a pipe, C, which either acts as a chimney or connects with one. The furnace is provided with the usual doors and dampers.

C′ represents the ordinary fire-grate.

D is the coil of pipe. It is made in sections d' d^2 d^3 d^4, each having flanges e, and bolted together by bolts e'. It is also provided with flanges or projecting pieces e^2, so as to extend into the brick-work far enough to support and keep it in place.

For an air-forcing device I have shown an ordinary blower; but any other apparatus for forcing a large quantity of air may be used. The blower f is connected to the lower part f' of the coil D. The upper part or outlet end, f^2, when used for drying lumber or other materials, terminates in an opening in the drying room or kiln, which room is provided with a suitable outlet opening or flue for carrying off the moisture from the materials to be dried, and thereby provide for a continuous current of hot air from the air-forcing apparatus through the coil and through and out from the drying-room.

The operation will be readily understood from the foregoing description and accompanying drawings. A fire being started in the furnace, the coil, being thereby subjected to a high heat, imparts a high temperature to the air as it is forced through it, which heated air passes through the drying-room in large quantities and rapidly carries off the moisture within it or in the material to be dried. The coil, being in the form of a continuous unbroken curve, allows a free and unobstructed passage for the air to be forced through in large volumes.

In Fig. 4 H represents a cap or trough. It is firmly secured to the lower or under part of the lower portion of coil, so as to leave a thin air-space between it and the coil. It is secured in place by an inwardly-projecting piece or pieces, h, on one side, and an outwardly-projecting piece or pieces, h', on the opposite side, and holding-pieces h^2; but it may be secured in place in any well-known way by bolts or other similar means. This cap H is made to conform to the shape of the under part or parts of the lower portions of the coil, being made in sections, so as to be fastened to each section of the coil, and should be made to lap over and cover the under or most exposed parts of the flanges where the sections of coil are joined together. Its object is to protect the most exposed portion of the coil from the fire. The tube, being in the form of a cone narrowing toward the top, so that no part is wholly directly over the other, presents a large portion of its lower surface along its whole length within the furnace to the direct action of the heat as it rises. Besides, it gives an easier or clearer passage to the air, so that a larger quantity may be forced through it by a given power in the same time than by the means heretofore used.

I claim as my invention—

1. A drying or heating device consisting of the furnace A, cone-shaped spiral tubular coil D, composed of the curved sections d' d^2 d^3 d^4, connected together substantially as specified, in combination with a suitable air-forcing device, substantially as specified, whereby a free and gradually-narrowing circular or curved passage is given to the air, as and for the purposes specified.

2. The furnace A, and cone-shaped spiral tube D, having on its under lower portion the fire-protecting caps or troughs H, in combination with an air-forcing device, substantially as and for the purposes described.

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Witnesses:
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