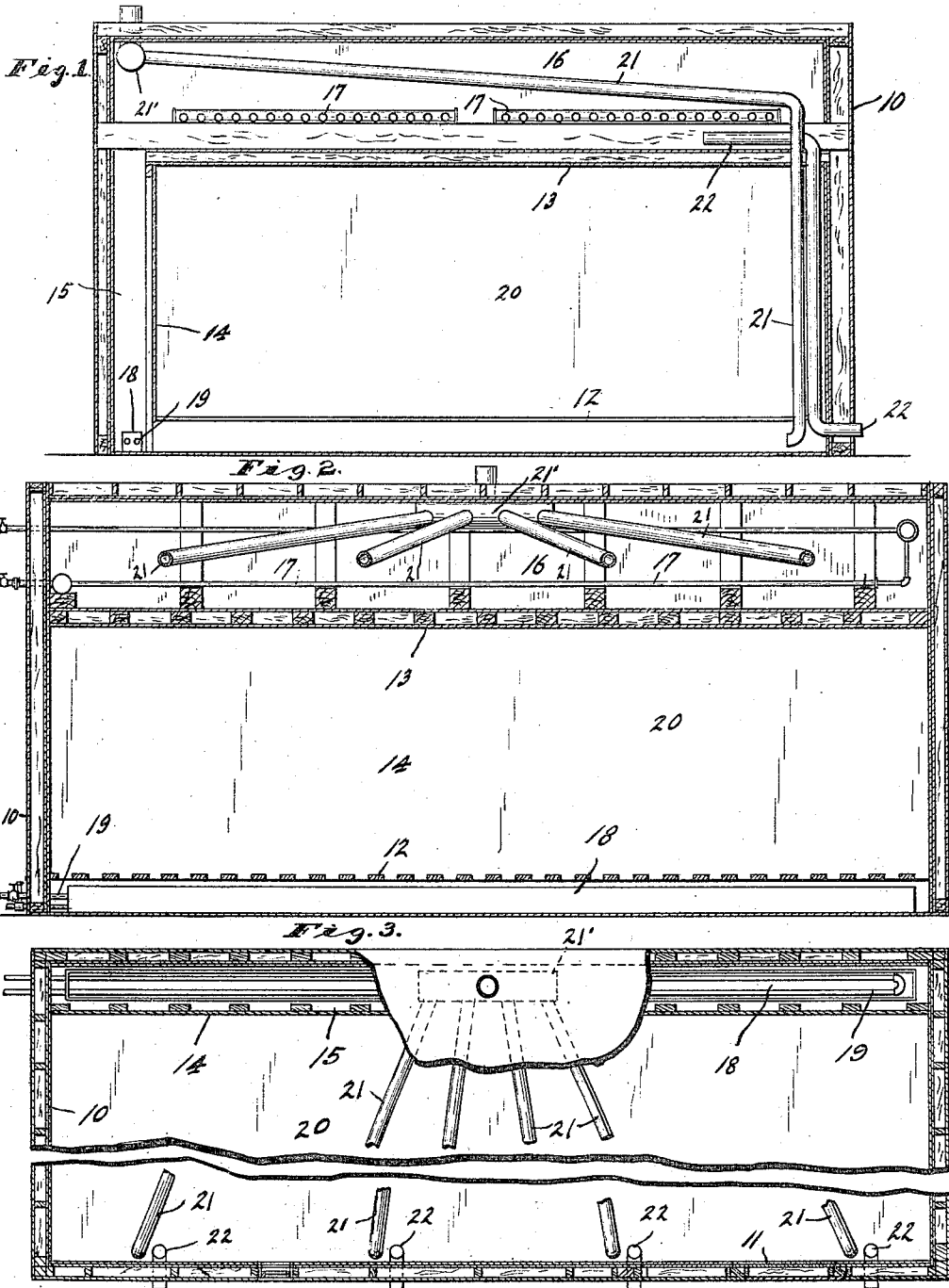


H. HUNTER.
 DRY KILN.

APPLICATION FILED JULY 23, 1912.

1,043,235.

Patented Nov. 5, 1912.



Witnesses
 Frank A. Fahl
 May Layden

Inventor
 Harry Hunter,
 By Arthur M. Hood.
 Attorney

UNITED STATES PATENT OFFICE.

HARRY HUNTER, OF INDIANAPOLIS, INDIANA.

DRY-KILN.

1,043,235.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed July 23, 1912. Serial No. 711,142.

To all whom it may concern:

Be it known that I, HARRY HUNTER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Dry-Kiln, of which the following is a specification.

The object of my invention is to produce a dry kiln in which freshly varnished articles, freshly glued articles, etc., may be hardened at a rate more rapidly than is possible by ordinary means without injury to the articles.

The accompanying drawings illustrate my invention.

Figure 1 is a vertical transverse section of a kiln constructed in accordance with my invention; Fig. 2 a vertical longitudinal section of the same; and Fig. 3 a horizontal section partly in plan.

In the drawings, 10 indicates a substantially closed room or compartment preferably properly heat insulated and provided with a door 11. Within the compartment 10, which may be provided with a raised slatted floor 12 near the bottom, I arrange a transverse horizontal partition 13 near the top, and a vertical partition 14 near, but spaced from, one side, so as to form an air passage 15 leading downwardly from the air compartment 16 formed in the upper end of compartment 10 by the partition 13. Arranged within compartment 16 is a heating coil 17 through which a desirable heating medium, such as steam, may be circulated. At the lower end of passage 15 is a water pan 18, within which a heating coil 19 is mounted so that the water within pan 18 may be brought to any desired temperature so as to increase or diminish vaporization of the water. The pan 18, which preferably extends the full length of the compartment 10, is located immediately adjacent the lower end of partition 14 so that all air passing downwardly through the passage 15 must pass closely over and be humidified by the water pan 18 before it can enter the drying compartment 20, which is formed by the partitions 13 and 14. Leading from the lower end of compartment 20, preferably at points as far distant as possible from pan 18, are air discharge pipes 21, 21, which lead upwardly into compartment 16 and thence for a considerable distance on a slight upward slant along compartment 16 before issuing out of chamber 10, the discharge

ends of said pipes being higher than their inlet ends. The pipes 21 all preferably lead into a drum 21', closed at the bottom and open at the top, depending from the top of the compartment 16. Leading into the structure near the lower part thereof, and proceeding thence upwardly through chamber 20 and into chamber 16, are air inlet pipes 22, 22, the inner delivery ends of which may be extended for some distance within chamber 16. Conveniently there is one pipe 22 beside each pipe 21, for equalizing inflow and outflow.

In operation, the upper ends of pipes 21 become highly heated by reason of the heat from coil 17, and, therefore, cause an upward flow of air through the pipes 21 so as to draw the air from the lower part of the drying chamber 20. Similarly, the pipes 22 become heated so that there is an inflow of air through said pipes into chamber 16, said air, because of the suction produced by pipes 21, passing down through the passage 15, over the water in pan 18, where it becomes properly humidified, and thence into chamber 20.

It has long been well known that freshly varnished articles, freshly glued articles, such as veneer work, etc., can be very rapidly and successfully hardened by proper application of highly heated and properly humidified air, but the difficulty heretofore experienced in the carrying out of such process has been to obtain a proper circulation of air within the drying chamber and a constant withdrawal of the varnish-fume-laden air from the chamber and the substitution of fresh air therefor.

Actual tests of my apparatus show that proper supply and circulation of heated and humidified air may be obtained by apparatus constructed in accordance with the above disclosure.

I claim as my invention:

1. A dry kiln consisting of a main chamber having a heating compartment arranged in its upper part, a drying compartment, an air delivery passage leading from said heating compartment to the lower part of the drying compartment, a water-pan arranged in the line of air movement from the heating compartment to the drying compartment, a heating coil for heating the contents of the water pan, a heating coil for heating the heating compartment, an air discharge tube leading from the lower part

of the drying compartment and thence upwardly and horizontally through a portion of the heating compartment over the heating coil and into the atmosphere outside, and an air inlet passage leading from the atmosphere outside into the lower part of the drying compartment and thence upwardly through the drying compartment and discharging into the heating compartment.

2. A dry kiln consisting of a main chamber having a heating compartment arranged in its upper part, a drying compartment, an air delivery passage leading from said heating compartment to the lower part of the drying compartment, a water pan arranged in the line of air movement from the heating compartment to the drying compartment, a heating coil for heating the heating compartment, an air discharge tube leading from the lower part of the drying compartment and thence upwardly and horizontally through a portion of the heating compartment over the heating coil and into the atmosphere outside, and an air inlet passage leading from the atmosphere outside into the lower part of the drying compartment and thence upwardly through the drying compartment and discharging into the heating compartment.

3. A dry kiln consisting of a main chamber having a heating compartment arranged in its upper part, a drying compartment, an air delivery passage leading from said heating compartment to the lower part of the drying compartment, a water pan arranged in the line of air movement from the heating compartment to the drying compartment, a heating coil for heating the con-

tents of the water pan, a heating coil for heating the heating compartment, an air discharge tube leading from the lower part of the drying compartment and thence through a portion of the heating compartment and into the atmosphere outside, and an air inlet passage leading from the atmosphere outside into the lower part of the drying compartment and thence upwardly through the drying compartment and discharging into the heating compartment.

4. A dry kiln consisting of a main chamber having a heating compartment arranged in its upper part, a drying compartment, an air delivery passage leading from said heating compartment to the lower part of the drying compartment, a water pan arranged in the line of air movement from the heating compartment to the drying compartment, a heating coil for heating the heating compartment, an air discharge tube leading from the lower part of the drying compartment and thence through a portion of the heating compartment and into the atmosphere outside, and an air inlet passage leading from the atmosphere outside into the lower part of the drying compartment and thence upwardly through the drying compartment and discharging into the heating compartment.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 9th day of July, A. D. one thousand nine hundred and twelve.

HARRY HUNTER. [L. S.]

Witnesses:

JOSEPHINE GASPER,
G. B. SCHLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."