IMPROVED DRYING KILN.

A cheap and economical apparatus for drying lumber, staves, and other material, has been long needed, and a great deal of time and money has been expended in experiments in this direction without corresponding results. Messrs. E. & B. Holmes have perfected a dry kiln which seems to combine all the necessary requisites for a successful drying apparatus.

This dry kiln, which is represented in the accompanying engraving, is composed of several sections, more or less as desired. In the bottom of each of these sections are placed two sets of steam coils of novel construction, one above the other, for radiating the heat, and on the side of each section is a thin apartment containing condensing pipes filled with cold water, supplied by a pump or otherwise.

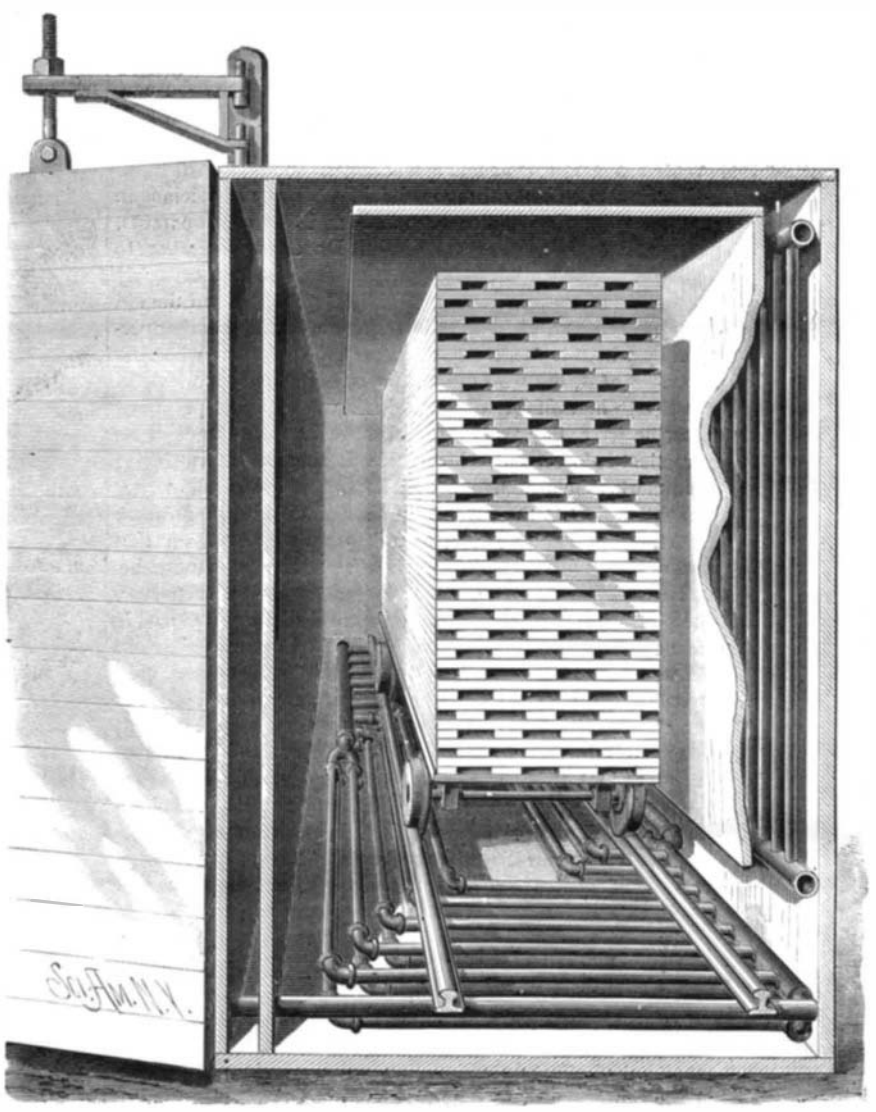
The air in the bottom of the kiln, being heated by the steam coils, passes up through the material to be dried, to the top of the kiln, carrying the moisture with it. Here it enters the thin condensing apartment and passes down, leaving the moisture upon the condensing pipes, and, being cooled, again passes downward under and through the steam coils, where it is reheated, when it again rises up through the material, and so on. In this manner a very rapid circulation is secured, which carries the moisture from the material to be dried and deposits it upon the condensing pipes, from which it runs into a conductor and passes out of the kiln, the same air being used over and over.

Car tracks pass through the kiln, and extend far enough in each direction outside of the kiln to allow of loading, drying, and unloading at the same time. In this way the kiln is kept open only long enough to pass one car out and another in, and as only one section is opened, the others are not affected or cooled by it.

The doors of the kilns are made double thickness with an air space between, and are swung on cranes, so that one person can handle them with ease.

Messrs. E. & B. Holmes, who are the inventors and patentees of this kiln, claim for it better results than can be obtained by anything else in use, having tried others and abandoned them, and they have now kilns of this kind that hold about 200 000 staves which they are using in connection with their barrel factory, the latter being filled with the Holmes barrel and stave machinery. This firm has an auxiliary apparatus invented by them for taking the condensed water from the dry kilns and returning it to the boiler without the aid of pumps.

Any further information respecting either dry kilns or stave and barrel machinery may be obtained by addressing Messrs. E. & B. Holmes, Buffalo, N. Y.



HOLMES' DRYING KILN.

IMPROVED INCUBATOR.

An improved incubator, which regulates its temperature and shifts the eggs automatically at regular intervals, is shown in the annexed engraving. It is provided with a series of longitudinal cloth hammocks or egg receivers, attached to end pieces pivoted to rigid supports and to movable bars, which are automatically moved so as to shift the eggs at regular intervals by suitable levers controlled by clock-work. The gas or oil cock of the flame of the boiler for heating the incubator is controlled by means of a pair of electro-magnets, connected with a battery, and with a metal thermometer provided with an adjustable scale so that the temperature of the incubator is regulated automatically.

In the engraving, Fig. 1 is a perspective view, and Fig. 2 is a vertical section. The box is constructed with rabbeted corner posts and a double casing, the space between being filled in with non-conducting material The box is also provided with a shelf, upon which the boiler and automatic regulating devices rest. The boiler, C, is provided with the pipes for conducting steam to and from the heating tubes circulating in the box, and arranged in such a manner as to gradually pitch back to the boiler. The boiler has a tube, F, for filling it, also a water gauge and a safety valve, and is heated by means of a flame of gas or of an oil lamp provided with an Argand burner. When oil is used, an oil tank, D, connected with the burner by a tube is placed on the shelf.

It is of the greatest importance to maintain a uniform heat in the incubator, and mechanism is provided which automatically regulates the temperature. A spiral metal thermometer, G, of well known construction, is attached at one end to a binding screw, fastened to the ceiling of the box, and connected with the battery by a wire, and the other end of the thermometer is attached to an index pivoted in the center of a curved scale at the side of the incubator, which can be adjusted by means of a journaled endless screw.

The index is provided with rectangular arms, which are hinged in such a manner that they can only bend upward, and can never form less than a right angle with the hand, so that if the thermometer continues to rotate the needle or hand, after the ends of the arms rest on the end pieces of the scale, the arms will not break, but will incline at the joint or hinge.

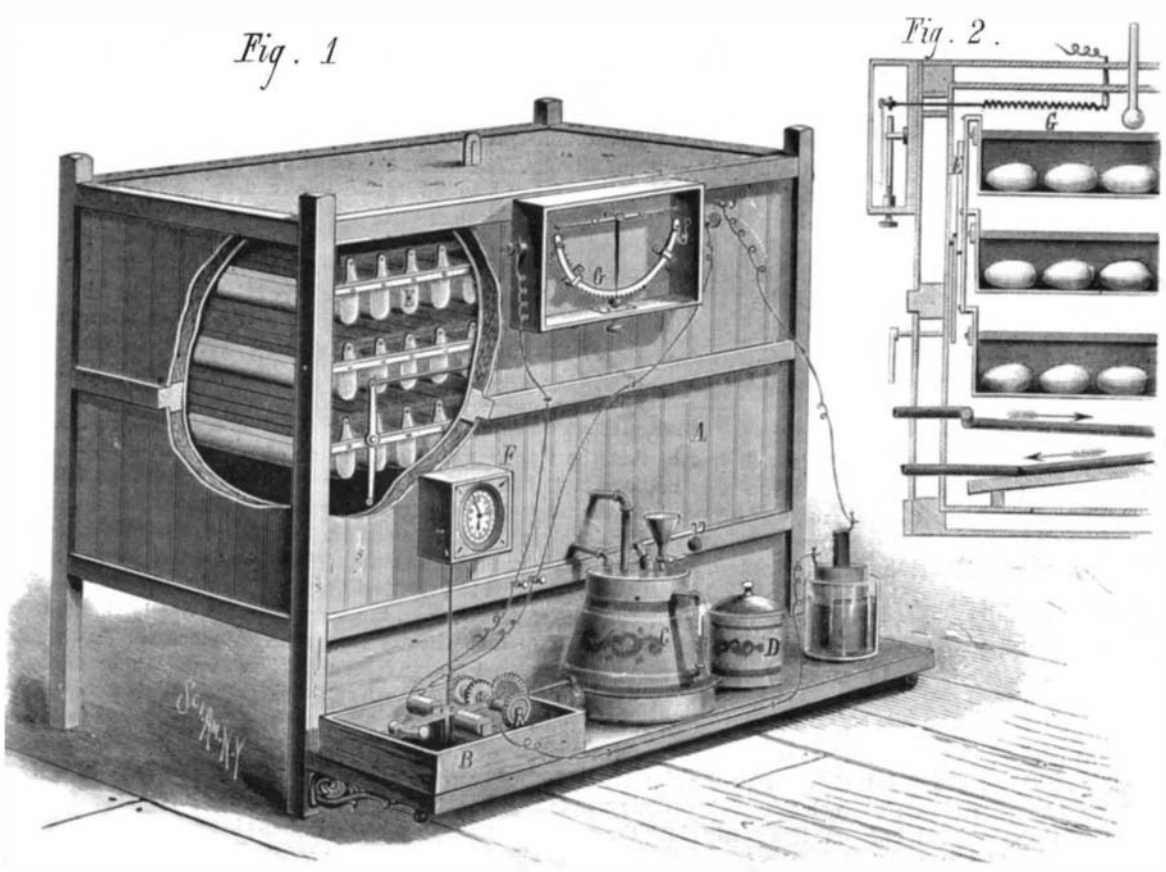
By means of the endless screw the scale, and consequently the thermometer, can be made to correspond with the mercury thermometer at the top of the incubator. The end pieces of the circular scale are connected with the electro-magnets by the wires, and the magnets are in turn connected with the battery.

The armature of the magnets is attached to a spring which holds it in a central position in relation to the two magnets. This mechanism controls the gearing, which operates a horizontal shaft driven by clockwork and acting upon the burner. The eggs are placed in longitudinal hammocks or receivers, made of canvas, attached to bars which are fastened to end pieces, which are pivoted to fixed bars and to movable bars. The movable bars are acted upon by the works of the clock, which are constructed similar to the striking mechanism of an ordinary clock, so that the receivers are moved at regular intervals.

The eggs having been placed into the hammocks, the metal thermometer, G, is regulated and adjusted according to the liquid thermometer. If the flame of the burner under the boiler is too large, too much steam will be generated and the air in the box will become overheated. The thermometer, G, expands, and, moving the index, the electric circuit is closed, operating the mechanism which turns down the flame of the burner. If the air in the box is too cold the above operation is repeated, but all parts move in the inverse direction, and in this manner the temperature can be controlled automatically. If desired, alarm bells may be arranged to ring when the temperature rises too high or falls too low.

Shallow vessels containing water will be placed above the steam tubes for the purpose of supplying the air in the incubator with necessary quantity of moisture.

This invention was lately patented by Messrs. Chas. L. and Henry S. La Barge, 22 Nicholson Place, St. Louis, Mo.



LA BARGE'S INCUBATOR.

NEW INVENTIONS.

Mr. John Menahan, of New York city, has patented an elastic band-fastening for pocketbooks. It consists of an elastic band and plates provided with a hook and slot to allow interlocking.

Mr. David W. Frazee, of Skaneateles, N. Y, has patented an embalming table, consisting of the two equal perforated hinged sections with side and end pieces, folding legs, braces, with fastenings. It is provided with adjustable head and foot rests.

Mr. Pearly N. Dixon, of Cahoka, Mo., has patented a stock for hand and other drills, so constructed that the drills can be easily, conveniently, and rapidly worked.

Mr. Ambrose Mathews, of Kewanee, Ill., has patented a force pump. A stem valve and spring-actuated hollow plunger, or piston, working in a close-bottomed cylinder, is so arranged that on the up stroke the valve lifts above the piston, and admits water to enter the top of the cylinder and flow into and below the piston, while on the down stroke the valves close down in the top of the piston, so that they act together as a solid piston in forcing water.

Mr. Andrew J. Curtis, of Monroe, Me., has patented an improved spring bed, having rows of upright spiral springs whose enlarged tops are connected with each other and the inclosing bed frame by rings and braces in such a manner that they can move only in a perpendicular line, so that when compressed the spirals of the springs will not come in contact with each other, said springs having their upper ends firmly and unyieldingly secured to their bodies to prevent their lateral contraction and expansion.

An improved car door latch has been patented by Messrs. W. McCombie and T. J. Morgan, of Chicago, Ill. The object of this invention is to construct a lock, especially designed for cars, that is easy of repair, of superior durability, and that can be attached to a car door in less time than other locks in use.