

MCEACHREN'S PATENT DRY KILN.

THE accompanying illustration (Fig. 1) represents a double room progressive dry kiln as manufactured by the McEachren Heating and Ventilating Co., Galt, Ont., driven by independent engine. These kilns can be made of any length and any number of rooms from one to ten. The manufacturers claim that they differ from other kilns in use in the following particulars:

1. They will do from 50 to 100 per cent. more drying with a given amount of heating surface and a corresponding amount of steam.

2. They handle about three times the amount of air handled by any other dry kiln and with about 25 per cent of the power used by other blast kilns.

3. The air is not only blown through the lumber, but drawn through. There being as much exhaustive product at one end of the kiln as forcing power at the other, the air is worked like a continuous belt.

4. The moisture from the lumber is held in the circulating air until the thickest lumber in the kiln is heated through to the centre; then moisture is taken off gradually as it evaporates from the centre of every piece of lumber in the kiln. This process, it is

claimed, completely secures against checking, warping, etc. The air being driven through the centre of lumber piles with great rapidity, the moisture is taken away as soon as it evaporates from the timber, thus preventing all danger from discoloration.

5. Green lumber may be put into the kiln and dry taken out every day, the same hot air being kept in circulation, and yet the moisture coming from the green lumber at one end of the kiln does not come in contact with the dry at the other end.

6. The great rapidity with which these kilns dry lumber enables the lumberman to season a given quantity per day, thus effecting a saving of about fifty per cent. in space as compared with some other kinds of kilns. To secure even drying of lumber the air must circulate with equal freedom around all parts of every pile of lumber in the kiln, and in case of weather seasoned lumber the circulating air should be kept from the ends as much as possible. These are already too dry to correspond with the centre, and being weather beaten and checked, will season faster than the centre with the same heat and circulation. These are points which the manufacturers claim to have carefully guarded in the kilns under consideration.

It will be observed from the cut that a new system of sliding doors is employed. These are easily handled, and occupy no room above the kiln. They close, and when shut are screwed together by a simple device so that they are absolutely tight.

Fig. 2 illustrates a cabinet-maker's kiln. In this it will be observed any car in the kiln can be taken out and another put in without disturbing other cars, a feature particularly valuable to cabinet-makers, carpenters, carriage makers, manufacturers of musical instruments, etc., as in all these departments of manufacture a large variety of thicknesses are used, and some kinds of lumber require much more time in seasoning than others. The fan in this case is driven from the shafting of the factory, the power in some cases being transmitted by wire or rope cable, but the independent engine is the

best, as with it any desired amount of circulation can be given, and if it is required to run the kiln at night the engine and shafting of the factory do not have to be in operation.

These kilns are claimed to be particularly adapted to the use of exhaust steam, and cause no back pressure. Exhaust steam may be used in the whole or any part of the heater, and the balance heated with live steam and charged at will. They are further claimed to be absolutely safe from fire.

The company also manufacture apparatus for drying wool, cotton, yarn, cloth, hair, fruit, etc., and for heating and ventilating factories and public buildings. They state that they will gladly send to persons interested Canadian and American testimonials in proof of the efficiency of their apparatus.



FIG. 1—PROGRESSIVE DRY KILN.

THE SPRUCE FORESTS OF NEW BRUNSWICK.

THERE are two if not three kinds of spruce to be found in New Brunswick, writes Edward Jack, of Fredericton, in the Northeastern Lumberman. These are the white, black, and possibly red varieties. Whether the last of these is really a distinct species is yet undetermined. The white spruce (*abies alba michaux*) is larger and more slender than the black spruce, from which it is distinguished by the lighter color of its bark and leaves. Its cones, which are two inches long, are deciduous, the leaves being needle shaped and sharp pointed. On the Restigouche, upper St. John, and many other places it grows to a great height with but little taper. In 1873 Mr. J. A. McCallum, crown land surveyor, cut down one of these trees on the Restigouche, the diameter of which was 25 feet

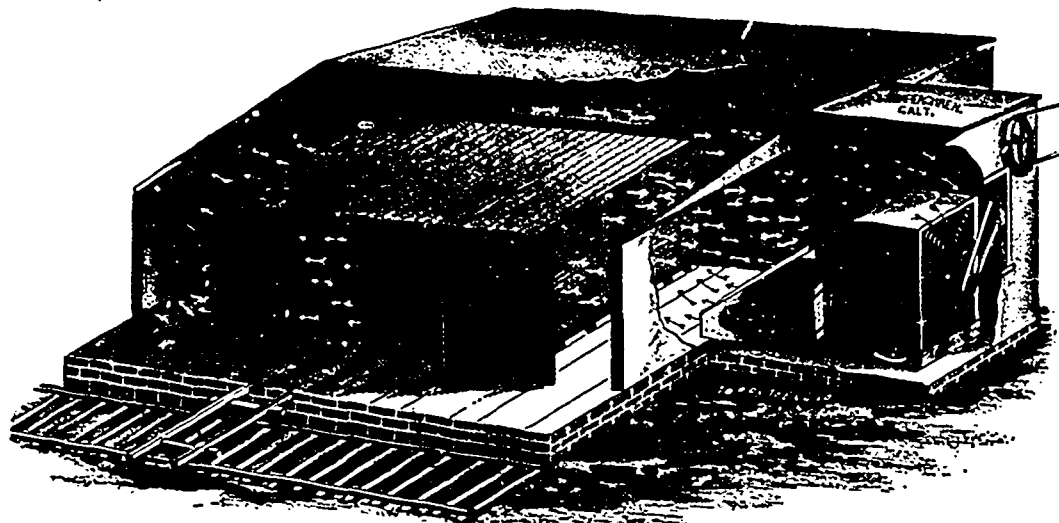


FIG. 2—CABINET MAKER'S KILN.

at the stump, and which made a log 64 feet long, measuring 10 inches in diameter at the top end. They are found growing in valleys, on the shores of rivers and streams and in small bunches on the sides of hills and mountains.

The yield of white spruce land will not compare with that of black spruce land, as the former tree is much more scattering in its growth than the latter. This very important distinction is one which is unknown to many land owners. The late Mr. McCrillis of Bangor did not know it until a few years before his death. The timber explorer who had been accustomed to the splendid forests of black spruce which once covered parts of New

Hampshire, or those which grew not far from the Maine seaboard, would be very apt to place a small value on the white spruce forests of the Upper St. John, and would almost be sure to underestimate the timber growing within their limits.

The wood of the white spruce is white and soft and freer from resin than that of the black spruce, on which account it would probably be better adapted for the manufacture of pulp than that of the latter. In fact, parties who for a long time have been using this wood for that purpose on the shores of the St. Lawrence state that such is the fact. The spruce deals exported from the Bay of Chaleur, as well as in New Brunswick, as in Quebec, are nearly all manufactured from the wood of this tree.

The black spruce (*abies nigra michaux*) as an article of export is the most valuable of all the trees of New Brunswick. Its leaves are about half an inch long, stiff, somewhat four sided, very dark green or whitish gray. Its cones, which are from one to one and a half inches long, have a color changing from dark purple to dull reddish brown. The bark of the tree is dark brown. The vast

forests of this tree, which once covered New Brunswick, have been reduced by the effects of wind, fire and cutting to less than a quarter of their original extent.

This tree was found in greatest abundance in the southern part of New Brunswick. A line drawn from a point a short distance north off the head of the eastern grand lake on the St. Croix, extending thence northeasterly to the dividing ridge between the Southwest Miramichi and Nepisiguit rivers, would show nearly the boundary of the great black spruce forests of New Brunswick. South of this line vast forests of it extended from the St. Croix northeasterly, crossing the Nashwaak and Southwest Miramichi rivers, thence to the Northwest Miramichi. North of this line the forest growth is more generally of hard woods, which are largely mingled with firs.

Such spruce as occur north of this line are usually of the white variety; to this rule there are certain exceptions in the valleys of the Meduxnakik, Becaguimec, Presquisle, and lower Tobique, part of the Aroostook and certain other branches of the St. John below the Grand Falls. Above the Grand Falls the spruce usually met with is of the white variety, although there are exceptions even there, such as on the head of the Alleguash and certain other streams in the State of Maine and on the northwest and certain other branches of the St. John which take their rise in the Province of Quebec.

In laying out the holes in a belt for the lacing, do not get them too near together, for while this practice makes the finished lacing stronger, it makes the belt weaker on account of the large amount of material cut away in making the holes.

When setting a boiler, pieces of common steam pipe, say about one inch in diameter, should be built into the outside walls in such a way that they will allow the air in the space between the two walls to escape when the heat expands it, and also allows it to enter this space when the boiler cools off.