legitimate needs of the vast territory of which Milwaukee is the distributing centre.

Messrs. Peirce & Whaling, it may be remarked, deserve all the prosperity they have had. It is the product of incessant vigilance, unwearied industry, the closest calculation and a conscientous avoidance of every element of speculation. This house has been enabled by the dullness in the demands of other markets during the past few months, to keep its stock down very close and yet supply its large trade directly from eastern manufacturers, with more than its ordinary promptness. For several months past its monthly sales of iron and nails have nearly equaled its stock on hand. We mention this fact to show the sagacity and care with which this vast business has been conducted during the most trying period in the history of the American iron trade.

Instead of a description of the establish of Messrs. Pierce & Whaling, we have through their aid obtained a pretty thorough inventory of the articles in which they deal which we present for the information of the trade at large as well as of any reader who cares to know what the heavy hardware and iron trade consists of. We have learned, to our surprise, that the item of railway supplies was never more than one-fifth of the entire business of the house, and that this proportion has been materially lessened in both directions during the past year. The trade that has diminished with constructors and repairers of railroads has been more than balanced by gains in the trade with manufacturers and dealers in all parts of the northwest.

An East Saginaw dispatch, reports that the lumber business throughout the valley is becoming more brisk. There has been more lumber sold and shipped during this month than any other during the present season.

SEASONING LUMBER.

So many correspondents have written us in relation to the various methods of seasoning lumber that we are induced to give the manner of seasoning performed by the "Beach High Pressure Steam Seasoning Process," or at least as claimed by the advocates of that process:

"The nature of this invention consists in subjecting wood to the action of direct steam, so confined as to allow of a pressure, of about 30 lbs to the inch, striking every pore at the same instant with a high heat, and by the pressure forcing the heat almost immediately completely through the wood, thereby coagulating and retaining the albumen and mineral salts in the wood; thus partially filling each pore with an insoluable compound, the affinity of which for water has been entirely destroyed; and so rendering the wood more solid, tougher, less brittle, susceptible of a higher polish, and much less liable to be affected by atmospheric changes.

In order to perform this operation, the lumber is separated by lath strips, loaded upon a small car, run into an iron cylinder or tank, when the door is closed, properly secured, and steam admitted from a boiler, until it shows a pressure in the tank of about 50 lbs to the inch, which pressure should remain for a time, dependent upon the thickness and kind of wood treated—thin or soft wood not requiring so much time as thick or hard wood. Six or eight minutes are sufficient for pine of one inch in thickness, and ten to twelve minutes

for black walnut of same thickness. Thicker lumber should be treated proportionately longer.

When lumber has been treated in this manner, it is no longer green, but simply wet, and it needs only to be piled in the usual manner, in order to become dry and ready for use in a very short time. Thirty days in the yard, after this process, is more than equal to one year without it, on any kind or thickness of wood; and the treatment is as efficacious upon perfectly green as upon partially seasoned lumber.

The cost of tanks will vary in different localities, and licenses are allowed to buy them where they can do so at the best advantage; but the present cost delivered on cars or of a tank five feet in diameter by nineteen in length (giving a seasoning capacity of from twenty-five to forty thousand feet per day,) with track inside, three cars, cocks, globe valve and steam guage, is about eleven hundred dollars.

The cost of operating will depend upon location, proper arrangement, cost of fuel, &c. When properly arranged, in a lumber region, the cost should be less than twenty-five cents, and in no case should it exceed seventy-five cents per thousand feet.

Green lumber, as is well-known, is that in which the natural sap of the wood exists, to a greater or less extent, in its normal state, and lumber is rated either entirely or partially seasoned when this natural sap has been evaporated and dried by a longer or shorter duration of exposure to the action of the atmosphere.

This change of condition, from a green state to that of seasoned and dry lumber, takes place very slowly under the action of the atmosphere, occupying years, even upon comparatively thin wood; while planks of some hard woods, of a thickness greater than four or five inches, it has heretofore been utterly impracticable to season thoroughly to the heart.

The sap of wood, to speak in general terms, is composed of two constituent parts, viz: solid and liquid. The principal ingredient of the solid constituent of the sap is albumen, and it is due to the presence of this substance that lumber seasons so slowly in the air; the albumen clinging with great tenacity to its moisture, and giving it up with great reluctance and very gradually. The action of the atmosphere in seasoning lumber consists, simply, in causing the evaporation of the liquid of the sap and the consequent drying and hardening in the cells and tissues of the wood of the albumenous and other solid portions; and as the sap oozes out, the water vaporizes while the albumenous substance solidifies at the orifice of each pore, until they become absolutely sealed up, thereby cutting off all further escape of the sap.

Hence it is that by dressing partially seasoned lumber and thus re-opening the pores, rapid seasoning will be revived.

It is a well-known fact that albumen which is simply dried and hardened by evaporation has a very strong affinity for and will attract and absorbe moisture with great avidity. In this

fact is found the chief cause of the universal swelling of lumber (no matter how well seasoned or dry it may be at the outset) whenever subjected to dampness and moisture. That this is a source of continual trouble and annoyance to all artificers in wood, need hardly be mentioned.

Many processes for seasoning lumber have been devised and put in operation, but have failed, either because the expense attending their operation has been too great; or because the fibre and quality of the lumber itself have been radically injured by undergoing the extreme of temperature involved.

From the foregoing the following facts are apparent:

To season lumber in the ordinary manner a long exposure to the action of the air is required.

Either air-seasoned or kiln-dried lumber readily absorbs moisture, and hence will swell and shrink.

Seasoning processes heretofore devised have proved both too expensive in operation, and injurious to the lumber.

MERITS OF THE BEACH PROCESS.

By the High Pressure applied, the steam is forced through every fibre, relaxing unequal tensions and providing for an equal and general shrinkage to the centre of the wood, thus avoiding the execssive checking arising from the kiln-drying or other surface heating, which causes rapid contraction without, and positive resistance and expansion by the imprisoned sap within.

It is a quick process. It has been demonstrated that lumber one inch in thickness, however green or wet, is by it thoroughly seasoned in from ten to thirty days. Planks and timber of any thickness commonly used are as easy, although not so quickly, seasoned as thin boards.

Lumber seasoned by this process has less capacity to absorb moisture, because each pore of the wood has been left partially filled with albumen, which by the action of the steam has become coagulated, fixed and insoluble.

Practice has demonstrated that this lumber will not swell in a damp, or shrink in a dry air, to one-half the extent of any other lumber.

The process is not expensive. Lumber seasoned by this process, while so much superior in quality, will cost less than that produced by other methods, and by its use, dealers may keep on hand complete assortments of thoroughly seasoned lumber, with the use of only a comparatively small capital.

Lumber instead of being injured by this process is very greatly benefitted by it. The "life" of the wood of the wood is preserved perfectly. Its fibre is unimpaired. It is less liable to check, become honeycombed, or "shaky." It is, also, rendered firmer, tougher, and less porus. Its surface is susceptible of taking a higher polish and a more elegant finish than can be produced upon air seasoned lumber.

This process does not kiln dry lumber. It is not analgous either in its method or effects to kiln-drying or the ordinary steam-drying processes. It produces in lumber no one of the many deleterious results occasioned by either of these modes of drying

lumber. It is a simple seasoning process, cooking the sap, liberating the water and so preparing the wood for rapid drying that even a hot air kiln will no longer injure it."

LUMBER MATTERS AT SAGINAW.

Lumber Shipped During Last Month and During the Season—Inspected Under the Law.

From the Saginaw Enterprise.

We have no new feature in the lumber market to note. Shipments during the past month show a great falling off, the shipments for July last being nearly eighteen million feet less than during the corresponding time last year. Notwithstanding this fact, the total shipments to August 1st are nearly five million feet in excess of the corresponding time last year. This is accounted for in the fact that the present season opened early, and the last season opened late. Below we give the shipments by water from the ports of East Saginaw and Bay City, during the month of July, as compared with last year :

EAST SAGINAW.

	July, 1873.	July, 1874.
Lumber	33,798,260	21,678,536
Lath	1,925,000	923,000
Shingles	3,250,000	4,722,000
Salt	1,700	7,420
Staves	463,000	153,000

There were also shipped last month 6,000 cubic feet of square timber, 177 cords of elm bolts and 400 tons of plaster.

BAY CITY.

	1873.	1874.
Lumber	52,069,621	45,804,066
Lath	4,699,000	4,478,000
Shingles	5,951,000	4,282,000
Salt	10,588	69,157
Staves	1,517,459	307,997
Hoops	1,760,000	1,080,000

FROM THE RIVER.

The following table shows the total shipments from the river from the opening of navigation until August 1st, during the years named :

	1872.	1873.	1874.
Lumber	209,287,493	258,914,254	263,812,138
Lath	18,824,380	14,752,500	21,577,740
Scingles	44,657,500	23,322,500	31,340,300
Salt	118,375	179,101	266,924
Staves	3,218,010	4,976,124	3,473,013

Sales made are mostly in small lots more largely for interior demand than formerly.

INSPECTED UNDER THE LAW.

The amount of lumber shipped from Bay City under the law during July was :

	Feet.
First clear	162,578
Second clear	182,873
Third clear	240,082
Three upper qualities	876,608
Common	11,104,071
Culls	2,030,030
Straight measure	275,236
Total	14,872,498

WHERE IT WENT.

To New York ports	9,767,013
To Ohio ports	2,684,318
To Illinois ports	1,486,993
To Pennsylvania ports	778,783
To Michigan ports	154,436
Total	14,872,493

The following were the commercial arrivals at the Saginaws for the years 1857 and 1858. The vast increase since that period is of remarkable magnitude. We find that they were as follows :

1857—Sail vessels	710
Steamers	128
Total	838
1858—Sail vessels	620
Steamers	92
Total	712

The imports of this port for 1857 were $3,076,030; exports, $1,589,030; 1858, imports, $1,436,070, exports, $4,414,800.

The commercial arrivals last year were over 2,000, 70 vessels and barges being engaged almost exclusively in the lumber carrying trade, with an aggregate tonnage of 17,000, and a carrying capacity of 18,000,000 feet of lumber. In addition to these there were some twenty vessels engaged in the oak timber trade. The shipments during the year aggregated 456,238,925 feet of lumber; 52,827,100 pieces of lath; 45,234,000 shingles; 45,234,060 bbls of salt, besides staves, hoops, oak timber, etc., etc., the value of which reached many millions.