



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 15, 1853.

TURNING LATHES—By Warren Aldrich, of Lowell, Mass.: I claim, first, the improvement described, which consists in giving an automatic motion to the upper slide or tool rest, when set at any angle to the bed-piece of the lathe, instead of moving it by hand, so as to turn with ease and accuracy, solid or hollow cones, as set forth, by means, substantially, of the screw, revolving worm shaft, and revolving plate, as set forth.

EXPRESSING SUGAR CANE JUICE—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the improvement of constructing each of the cane-pressing tubes, substantially as specified, viz., with sides made parallel some distance (for the working of the piston against), and to approach one another towards the mouth of discharge of the pressed cane, whereby advantages as mentioned are gained.

Also the combination and arrangement of the compresses, or pressing tubes, and two conjoined pistons, with one revolving, actuating shaft, and its mechanism, to give to their plungers or pistons a simultaneous reciprocating rectilinear motion, all as mentioned.

HEATERS FOR SUGAR SYRUP—By Henry Bessemer, of Baxter House, England. Patented in Eng., Feb. 24, 1852: I am aware that in locomotive engine water has been heated by standing in tubes exposed to the flame or direct heat of a furnace; now such a mode of heating will not answer for the treatment of the saccharine syrup, as the heat of a furnace is not susceptible of regulation, as is that from steam, the latter not burning the syrup, or injuriously heating it, as would the former.

I have discovered that the heat of steam applied to syrups, as described, in connection with the action of gravity, produces advantages, in rapidly heating the syrup, unattainable by any process, when the syrup is passed through pipes heated by direct heat, or the flame of a furnace.

It is, therefore, that I expressly disclaim the mode of heating water, by allowing it to flow through a stand or tube, heated by the direct heat of a furnace, but base my invention of the method described of treating saccharine syrup, by means of the apparatus represented, as arranged and constructed to operate, for the purpose set forth, by the power of gravity and steam, the same consisting of a combination of the receiving vessel, series of tubes, a chamber and pipe, and the steam chamber, having induction and ejection pipes, as specified.

TOPPING-LIFT AND PEAK HALYARD BLOCK OF SAIL VESSELS—By Wm. & S. G. Coleman, of Providence, R. I.: We claim supporting the topping-lift, by means of a crane, of such form and construction, that when the topping-lift sags, when the sail is hoisted, it shall not foul or chafe against the peak halyard block.

Also, so arranging and constructing such crane, that it may also support the peak halyard block, as specified.

ROCKING CHAIRS—By Peter Ten Eyck, of New York City: I claim in combination with a sitting chair, so arranged that the seat may rock upon the legs, or support the safety piece or guard, hung eccentrically to the pivot of the bar on which it rests, and the spring for preventing the top part of the chair from rocking too far or too suddenly, as described.

KNITTING MACHINES—By Moses Marshall (assignor to W. Aldrich & L. B. Tyng), of Lowell, Mass.: I claim, first, connecting the rotary depressors and the feeder, which carries the thread, with the arm which connects the reciprocating cam bores, as described.

Second, dividing the plates which support the needles and cast the stitches at the angle of intersection of the two sets of needles, so that the fabric knit, will or may pass between them.

Third, forming the stitches alternately on each side of the needlerests, by two sets of needles placed at an angle to each other, and operating one needle at a time, as set forth.

RE-ISSUE.

SELF-ACTING MULES FOR SPINNIG—By Wanton Rouse, of Taunton, Mass. Patented originally Nov. 2, 1852: I claim, first, governing the revolution of the spindles in winding the yarn on the cop, also in backing off during the progressive stages of the building, by means of a cam or any equivalent device of irregular form, circumferentially with the said irregularity, varying from end to end, the said cam or equivalent being caused to operate upon the mechanism which drives the spindles, in any way that will produce the results set forth.

Second, the mechanism for causing the finger through which the irregular surface of the cam or its equivalent, acts upon the mechanism which drives the spindles, in backing off and building on, to traverse the said cam, and to be kept close to its surface, consisting of the screws, nut, cord or chain, lever, and stud, operating in combination, as set forth.

First Decision Under the New Steamboat Law.

The inspectors of steamboats at Cincinnati, appointed under the new steamboat law passed by Congress, have made a thorough investigation into all the facts touching the recent collision on the Ohio between the steamers Falls City and Pittsburg. The testimony elicited established the following facts:—The night was a foggy one when the collision occurred, and the "rules and regulations" requiring the "ringing of the bells and blowing the whistle at intervals of two minutes when running in a fog," were not complied with. Had they been complied with, the collision would not have taken place. As it was, laudable efforts were made by both boats

particularly the Falls City, to prevent it.—The signal bell of the Falls City was tapped twice, signifying her wish to go to the larboard, and that of the Pittsburg tapped once, expressing a desire to go to the starboard, but unfortunately, the signal of one was not understood by the other. It was also proven that the collision would have been rendered less harmless had both boats instantly stopped on discovering each other. This was done by the Falls City, but not so promptly by the Pittsburg. In view of all the facts, they acquit the two engineers who were on duty at the time, and suspend for twenty days the license of John White, the pilot of the Pittsburg, and the license of Jeremiah Mason, the pilot of the Falls River for ten days, for not observing the rules and regulations. The inspectors state that the penalty in this case is made light from the fact that the rules are new, and as yet imperfectly understood; but that in all future cases they shall exact the most rigorous penalties of the law.

(For the Scientific American.)

Drying Meal and Lumber—Experiments with Steam Heat.

I took out a patent in March last for my machine noticed in the "Scientific American," July, 1847, and am now using the invention in connection with Hon. H. L. Ellsworth, of this place, for Kiln-drying Corn Meal and Hoiny for shipment.

The primary object in view in getting up this invention, was to kiln-dry with little fuel, and use steam as a regulator of the heat, to prevent scorching. In the old mode of using steam, much heat is lost from the arch, and also by conducting the steam at some distance from the generator (as is frequently the case); it is nearly condensed by the time it reaches the point where its influence is needed. To remedy this, you will remember I pass the flues from the arch several times through the steam chamber. Some heat is also lost by the old mode, in permitting the steam to escape in order to make room for a new and hotter supply. This is also remedied by making only steam sufficient to keep the box full, and keep up the heat by the flues from the arch.

I did not, however, suppose I could heat the steam beyond about 212° with the small confinement which I used (there being always an open discharge at the bottom of the steam box for the steam to pass off when there was any pressure). But I soon found that I was actually heating the steam with only this small confinement, even to the point of ignition.

Being engaged in the lumber business, I thought the plan a good one for seasoning it, and accordingly put it at once into practice with the happiest results. I also applied the heated steam to seasoning barrel staves, by which I removed the sap from them in a few hours, and they would be fit to work with little exposure to the air, to expel the moisture occasioned by contact with the steam. The staves thus seasoned proved to be stronger, and would dress smoother than those seasoned in the open air.

Since the matter of heating steam without confinement was a disputed point, I determined to make a trial that would settle the matter. I had often set fire to wood by the steam, in making my experiments; but many were skeptical because the books were against it.

For the purpose, therefore, of making a thorough trial, I constructed a double box for the steam, and filled the spaces between them with saw-dust for a non-conductor. I then made an excavation in the ground of the size of the steam box, and of sufficient depth, into which I placed a stove (with about 40 feet of 7 inch pipe, to save heat), and then placed the steam box, without a bottom, over the excavation, and banked the dirt up to it to keep in the heat. A pan of water was placed upon the stove to make steam to fill the box, the pan being supplied with water as often as it evaporated. I then weighed 1000 feet of green white wood lumber and placed it in the box, commencing four feet above the stove and pipe, to avoid the direct heat of the arch. The lumber was stuck up with lath between, to allow the free circulation of steam and heat through it. As the heat and steam were both generated below the lumber, they rose together into it,—the extra heat to liquify the

sap, and the steam to keep the pores of the lumber open for the sap to pass out, and also to keep the lumber from scorching in case too high a heat should be raised. It was therefore expected I should make a two-fold experiment, viz., to ascertain whether I could season more rapidly than by the old method, and also to settle the matter whether I could heat the steam without pressure beyond 212°.

Those who were skeptical said, if I could kiln-dry the lumber in four days, they would be satisfied. I built a fire in the stove (placed in the vault beneath the lumber) at about 5 o'clock in the morning, and kept up what would be equivalent to a good bar-room fire in a cold day. The box was soon filled with steam, made in part, doubtless from the green lumber, and sooner than many persons would imagine (from the small amount of fuel used) the lumber was evidently hot—indicated by steam, which at times forced its way out through the box. In about 12 hours from the time of making the fire, viz., at 5 o'clock in the afternoon, I discovered smoke issuing from a point in the kiln about midway of the lumber, at a place where, at times, during the day, I had seen small quantities of steam escape. Since the lumber could burn no faster than air was admitted at that place, I partially closed the aperture and continued the fire about an hour longer—then opened the kiln, extinguished the fire (which had burned but a few feet), and removed the lumber, while hot, in order to permit its own heat to expel the moisture occasioned by the steam. When the lumber was cold I re-weighed it, and found I had diminished its weight 1200 lbs. and actually set it on fire with the steam!

On examining the lumber the skeptical gentlemen acknowledged it was well seasoned, or at least that the sap was all removed, and proceeded at once to prepare it for constructing a building.

But I do not intend to season thus rapidly, nor do I think it policy, for the benefit of the timber, to raise the steam to so high a heat, and for reasons which will appear hereafter. But that the steam was raised to the point of ignition I will proceed to give the evidence. The stove was so arranged that no sparks could issue from it into the lumber above, and the pipe was not only sound, but the joints were cemented, thus avoiding the possibility of setting fire to the lumber by means of sparks. Then add to this the improbability of a spark passing four feet through dense steam before reaching the lumber above the pipes, and then passing in a zig-zag course, through sixteen thicknesses of boards, stuck up as before-mentioned, before reaching the point where the fire commenced,—and the impossibility of the fire being kindled by the sparks will be settled.

The known fact that steam, however hot, will not ignite without being supplied with air, is also another evidence that this was done by the steam; as the fire took at a place quite distant from the arch, and at a point where a crack in the box admitted the air and discharged steam. At the same time a board, making a part of one end of the vault beneath and placed only one foot from the stove, was neither colored nor scorched by the heat, as no air was admitted at that point. I called the attention of many scientific men to the experiment, and none expressed a doubt that the lumber was set on fire by the steam.

You doubtless remember the report that was made to the Academy of Science, in Paris, a few years since, by a M. Viobelta, of some experiments which he had made in the seasoning of lumber by a high heat of steam. He placed some pieces of the different kinds of wood into a steam boiler, and then raised the heat by means of pressure to 480°. The pieces thus seasoned he afterwards submitted to the test, in connection with other like pieces, not steamed, and found their susceptibility to resist fracture had been increased by this seasoning (in the different kinds of wood), from 2-5ths to 5-9ths, besides causing them to receive a higher polish.

Lumber seasoned by steam has many advantages over that seasoned by hot air, since the steam removes the sap, which is one of the great causes of the shrinking, swelling, and warping of lumber, while the hot air dries this sap into the lumber, and causes the lumber to be brittle, liable to shrink, swell,

and warp, as well as diminishing its strength and value for building purposes. Lumber can be seasoned as much in 24 hours by steam at 500° as in a common board kiln in two weeks, or in the open air in six months.

I will name some some of the advantages of the heated over the common steam in the kiln-drying of grain, flour, and meal. By my process you will remember the grain, &c., is passed back and forth through the dryer, by means of conveyers, inside of tubes; in order to successful ventilation (a point often overlooked) both ends of the grain tubes are left open, and as often as the grain is conducted 6 feet, inside of the tubes, which are surrounded by the heated steam, it is conveyed 2 feet entirely in the open air, for ventilation. By the ordinary heat of steam, it would be impossible to keep up a sufficient amount of heat in the tubes to dry rapidly and successfully, unless by greatly increasing the size and expense of the machine.

It is a great saving of fuel, since the heating of the steam is performed by the escape heat from the arch, and instead of making steam continually to supply the place of that which has given out only a few degrees of heat, and has passed out into the air, or has been condensed; the escape heat is applied, which, in a great measure, keeps the steam from condensing, and even when allowed to condense, it returns to the pan beneath, to be again raised in steam as needed, without the loss of heat. Another advantage is the susceptibility of steam to take up and hold several times its own amount of heat as latent, and thus when the flues passing through the steam chamber become overheated, it takes up the heat and holds it as latent, to be imparted to the grain tubes as needed, while, at the same time, it acts as a regulator of the heat to keep the tubes from scorching the grain, meal, &c., in its passage through them as is often done in the case of hot air.

In the heating of rooms, also, by steam, a great gain will of course result from starting the steam on its mission through the building freighted with five or six hundred degrees of heat, rather than the usual heat of 212°. The drying of paper could be greatly facilitated in the paper mills, by using this means of raising a high heat of steam, as the steam would be thus required to give out several hundred degrees of heat before it is condensed.

Green peas, corn, and beans can be rapidly dried by this process without danger of scorching or coloring, and without the trouble of changing from the oven to the air and air to the oven.

I have taken 21 lbs. of water from a barrel of meal and 15 lbs. from a barrel of flour, and the flour, when baked, made more and better bread. Corn may be kiln-dried in the ear (in the early part of the season) sufficiently to make it shell, by putting it into the lumber car, which is placed on a track running through the dryer. The lumber is stuck up on the car, and the car is then run into the dryer, by means of double doors at each end, the doors are closed, and the lumber is steamed on the car, and then passed out at the other end on a track, and another car is run into the dryer. Thus no time is lost, and the heat of the kiln is not wasted by being long kept open. H. G. BULKLEY.

La Fayette, Ind., March, 1853.

Cotton Covering for Hot Beds.

The cotton is first stretched on the frames, and then coated with a composition consisting of three pints of best old boiled linseed oil, four ounces of white resin, and an ounce of sugar of lead; the latter being first ground with a little oil, and the oil and resin heated to make them mix. A coat of this should be applied every season just before use.

A telegraph line is now being constructed in California from Sacramento City to Mormon Island, Columbia, Placerville, Auburn, Grass Valley, and Nevada—a distance of one hundred and five miles. The posts have been planted on all but fourteen miles of the route.

Horse Stealing has become so prevalent in Northern Indiana, that there are societies of the best citizens organized in nearly all the counties to arrest and bring the rogues to punishment.