NEW WOOD PRESERVATIVES.

Immersing the lower ends of fence posts in hot coal tar will preserve the outside for years, but it very frequently happens that in using small trees from four to eight inches in diameter the heart wood is the first to decay. This often occurs with chestnut posts that are set before they are thoroughly seasoned. To prevent this decay at the centre, as well as of all that part of the post placed below ground, by the using of wood preserving solutions, my friend and neighbor, J. J. Suckert, Ph. D., suggests a system which strikes me as being not only novel, but exceedingly valuable as well. It is to have a hole in the centre of the post, from the bottom upward, to a point that shall be above the ground when the post is in position. Then bore another hole in the side of the post with a slight inclination downward, making an opening in the centre hole, which will allow free passage. A wooden plug, two or three inches long, should be driven snugly into the hole at the bottom of the post, in order to prevent the escape of any liquid that may be used in the operation. Now when the posts are set in an upright position, a preservative solution may be introduced into the hole in the side and the centre one filled with it, after which a cork or plug of some kind should be inserted in the side hole to prevent evaporation, as well as to keep out dust and insects. The solution thus introduced will gradually be absorbed by the surrounding wood, until all parts along the entire length of the central cavity must become completely saturated. When the solutions used have been taken up by the surrounding wood, it will only be necessary to withdraw the cork, or plug, and apply more, if it is thought desirable. A common watering pot with a slender spout will be a handy vessel to use in distributing the solutions.

Petroleum, creosote, corrosive sublimate, or any other of the well known wood preservatives may be used in this way. Telegraph posts might be prepared in the same way, and if the central reservoir were kept filled with petroleum, they would last one hundred years or more. Where a large number of posts and poles are to be prepared, it would be cheaper to have the holes bored by steam or horse power than by hand. With very open and porous wood it is quite probable that a hole bored in the side of the post and above the ground, and deep enough to hold a pint or more of creosote or some similar solution, would answer, but I think a central cavity reaching to the bottom would be best.—*American Agriculturist.*

HOW FAST?

"It is easy enough to run a locomotive a mile a minute," said a railway superintendent of motive power to the *Herald* reporter. "An accommodation train on our road, scheduled at about thirty miles an hour, frequently runs at the rate of 60 for short distances between stations. It's the stops that break up speed, and that is one reason why they can make such speed over in England. Their crossings there are rarely at grade. The new road must get over or under the old one. The result is they have very few stops to make. Now, take the Lake Shore limited between here and New York. It is scheduled to run through—970 miles in twenty-five hours. That is almost thirty nine miles an hour. Fifty-five minutes are lost at Albany, Syracus, Rochester, Buffalo, Erie, Cleveland, Toledo and Elkhart. Besides these division stations, where engines are changed, some time is lost in getting through all cities, and over some bridges, like the long trestle at Sandusky. But this is not all. There are twenty-two grade crossings between New York and Chicago, and for every one of them must come to a standstill Engineers agree that no stop can be made without losing at least four minutes. On the run we are speaking of that means about ninety minutes lost by grade crossings. Taking out all delays and stops the actual running time is about 22 hours, or at the rate of 40 miles an hour. The engineers tell me that not an hour passes that they do not run one or more miles faster than a mile a minute. But for the grade crossings and the law requiring all trains to come to a full stop before them the run from New York to Chicago in 25 hours would be just as easy as anything. Did you ever hear where that law started? Well, it was right here in Chicago. April 25th, 1852—I remember the day well—a train on the Michigan Southern collided with a Michigan Central train at what was then called Grand Junction, near Grand Crossing. Twenty-five people were killed and forty or fifty injured. An indignant meeting was called here in Chicago and resolutions were adopted demanding a law requiring all trains to come to a stop before such crossings, and compelling the employment of a targetman. That was the first suggestion of the idea, and to-day there are not less than 5,000 grade crossings in this country, at each of which one man, and at many of them two men are employed.

"A locomotive can easily travel at the rate of a mile a minute on a straight, level track if not overloaded and if a good steamer. I myself have driven an engine as fast as 67 miles an hour for five or ten minutes, and there is a well authenticated case of a locomotive moving at the rate of 73 miles an hour for a short time, the fastest record ever made with a locomotive. That was 8,185 feet a minute, or 460 revolutions a minute for a five and a half foot driver. That is faster than you can count and faster than any steam engine of that type should run. The English are ahead of us on fast locomotives. The build their engines with but one driver on a side, and thus avoid the danger of the parallel rods connecting geared drivers. Set a locomotive going as fast as she can hum and there is great danger of accident—that the parallel rods will break. Think of those four wheels on two axles, all geared tight, and moving at that pace. A slight jump, a spring or a tilt to one side is likely to alter the adjustment, bring on an unequal strain and snap one of the rods as if they were pipe-stems.

"Do I believe locomotives will be built to run 60 miles an hour, schedule? I certainly do. What is there to hinder? It is simply a question of power and economy. Build a two driver locomotive with ten foot wheels and sufficient steam capacity for the loads she is intended to draw, and there is no reason why she should not run three miles in two minutes. On a first class track there is no more danger of derailment at 60 miles an hour than at 30. Cost a small fortune to build a locomotive? No, indeed, not now. A few years ago a good engine was worth from £14,000 to $17,000, but now they can be built for from $7,000 to $9,000. some switch engines do not cost more than $4,000. The usual type of locomotive has about 200 separate parts, and the life of the machine is put at ten years, though there are engines in Chicago to day that have run ten years without overhauling, and are good for several years more. The flues of locomotive boilers need constant attention. The first locomotive that was ever seen in Cnicago is still on her legs and able to work, though no work is done with it. She stands in a shed out at the Northwestern shops."—*Chicago Herald.*

DEFECTIVE SAFETY-VALVES.

Having seen many defective safety-valves and had some experience with them, I have thought it worth while to give my ideas regarding them. Some time ago, when I was but fourteen years old, and know no more about an engine and boiler than the workmen did about me, it so happened that I was given charge of a portable threshing engine which had a very defective safety-valve. It was of the old ball and lever type, too well known to need any description. The valve had to be keyed down when moving from place to place, and the ball had to be taken off or it would shake off; and when the engine was at work, the motion would shake the ball so that there was a continual waste of steam, which was quite annoying to me, as I very often make steam enough to run the machine; so I used to key the valve down tight, so as to hold what steam I had, and when the engine had to be stopped, and the fire was strong, I would look sharp, and open the fire door and, perhaps, throw cold water in on the fire, taking good care to get out of the way of the steam which came rushing out of the door. I ran that engine for two threshing seasons without any accident, which was owing probably more to good luck than good management.

I then ran another portable engine of another make, with about the same kind of safety-valve, but instead of the objectionable weight the lever was held down by a spring, which I think was also very objectionable, because when steam should have been blowing off freely, the spring was so far out on the lever that a very slight lift of valve would increase the tension of the spring, and as this increase of tension was not provided for in the valve, of course steam would not blow off much till it had raised some ten or fifteen pounds beyond point of blow-off, and as the valve was liable to stick fast at any time it was not only very dangerous, but a perfect nuisance.

I had so much trouble with this valve leaking and sticking that I persuaded my father, who owned the engine, to let me get a spring pop valve, which I used for four years, and never but once had any trouble with it. That was when a small chip of iron got in the way when the valve was shutting down, and the chip got fastened, so that raising the valve would not let it out, and I was obliged to let steam down and take the valve apart. This valve would relieve the boiler under all circumstances, and I never knew it to leak or stick.

The next boiler that I took charge of was a saw-mill boiler of the locomotive type, and in looked as if it might have been older that myself. It had just about such a safety-valve as I have described above, and I soon replaced it with one of Crosby's spring pop-valves, and since then I have used no other, though I think there are others as good as the Crosby.

It seems to me that engine-boiler makers are much too careless about providing their boilers with good safety-valves.

Two years ago I was occasionally at a new bone-mill in which were an engine and boiler from one of the most prominent engine-building companies. The boiler was of about 100 H.P., fitted with one of the old style safety-valves, which I thought was of very little account.

One time in particular, when I happened to be in this mill, one of the main driving belts gave out, and so the engine had to be stopped. They generally carried steam at about 80 pounds, with the valve set to blow off at 90 pounds, which I think it seldom did. This time steam was close to 110 pounds and the valve still close to its seat. The engineer got a piece of board and went up a ladder at the, side of the boiler wall and pried the lever up when the steam came out with a terrible noise and still kept on blowing after the engine had been started and steam was down to 80 pounds. The engineer then went up the ladder again and shut it down. I think such a valve not only very dangerous, but a continual nuisance. It should be replaced by one that will relieve the boiler under all circumstances without the help of the engineer, and close promptly when the pressure has been lowered sufficiently.

I could mention many other circumstances regarding defective safety-valves; but my article is already too long, I am afraid, so in conclusion I will simply say that owners of boilers cannot be to careful in avoiding the old-style lever valve, in which the lever comes so handy to hang old wrenches and such things on, so has to stop the valve from leaking so much steam.—*W. T. S., in Saw Mill Gazette.*

Fatal Boiler Explosion.

BRADTOWN, Ky., June 26.—The boiler at the distillery of Matingly & Moore exploded this morning. Three of the work hands, Chas. McAtee, Chas Spaulding, and Mason Baird were killed instantly, and Bemis Allen was fatally bruised and burned. All were coloured. The scene at the distillery was horrible. Matingly & Moore's loss is great, as the building is wrecked and the machinery ruined.

CHARLES H. Nuite lately returned to Cheboygan, Mich., from an exploration of the Spanish river, Ont., region, in quest of timber, as an agent of Canada parties. He reports a large amount of pine and timber woods in the territory investigated, and that the streams are fine for running logs. The Sable river is a fine driving stream emptying into the Spanish. It is as large as the Cheboygan river for 100 miles, and has a rapid current. A jam of logs was run 100 miles on the Sable in four days.

MODIFYING THE PROPORTIONS OF A ROOM.

To make a room appear higher, the plane surface of the ceiling should be increased by the mouldings of the cornice by panels, or, in the absence of these, by bands of color performing the same office. A vertical system of line should be adopted in mural decoration, and the mantel should be lower.

To make a room appear lower, exactly the opposite treatment should be adopted; that is to increase the plane ceiling, adopt a horizontal system of mural decoration, with a dado and a high mantel.

To make a room appear wider is accomplished to a certain extent by making it appear lower; but where this is undesirable, or where it is insufficient, the effect can be reached by adopting a mural decoration on a graduated scale of form, decreasing upward, so that two or more pattern at the top like those at the foot are found to occupy the same space as one at the foot, and this effect can be much increased by a gradation of color upward from dark to light.

To make a room appear narrower is accomplished to a certain extent by making it appear higher; but where this is undesirable or insufficient, it can be obtained by adopting a strongly-drawn large pattern in strong color for mural decoration.

To make a room appear longer is to an extent accomplished by making it appear lower and narrower; but where this is undesirable and inefficient the effect may be obtained by decreasing the scale and strength of color of the mural decoration adopted at the ends.

To make a room appear shorter is accomplished to an extent, by making it appear wider and higher; but the effect can be achieved by increasing the scale and strength of color of the mural decoration adopted at the ends.

Any of these effects can be modified or increased by the treatment of the floor surface; whither by the carpets, the rugs or painted boards, or by parquet flooring; lines running across a room, or rugs laid down at intervals, having the effect of shortening, and consequently, to an extent, of heightening and widening a room. Lines running in the length increase this dimension, and to an extent reduce the height and width. A polished floor increases the apparent height of an apartment by reflecting all vertical lines and prolonging them.—*Harper's Magazine.*

LEAKY BOILER TUBES.

Tube ends, according to the *Locomotive*, are a source of annoyance in some types of boilers that give rise to much trouble. This is especially apt to be the case with boilers of the vertical type. The upper ends are exposed to the action of the heated gases, and there being no water to prevent overheating, they are soon loosened and set to leaking badly. This gives rise to corrosion of the ends of the tubes and the upper head, which in many cases goes on with great rapidity. It is no unusual thing to find the upper tube sheet of upright boilers eaten half way through and nearly all the tubes leaking badly. This leakage is not so apparent from steam pressure as it is from water pressure. To the unpractical boiler attendant everything may appear to be all right, but when the boiler is filled to the top with water, and pressure applied, there is generally some fun. The lower ends of tubes are also very apt to give more or less trouble, especially where upright boilers are used for heating purposes and the blow-off does not quite drain the boiler. This is generally the way the uprights of the pot hung type are arranged, and during the summer months, when the boiler is standing idle, the interior of the shell and the tubes, just at the surface of the water left in the boiler, is subjected to severe pitting. Sometimes the tubes of this class of boilers are completely riddled in a very few seasons, whereas, if properly cared for, they should last many years.