

SETTING MACHINES.

Setting machines belong to the same class of work as erecting shafting, and is much the same thing—a matter of judgment rather than of acquired skill.

The only general rule that can be given is to set them level, with their shafts and spindles parallel to the line shaft. There are, however, many plans of doing this, and a word on the subject will not be amiss.

When a new shop is built, and the line shaft erected, or when its position is determined, and before it is erected, each floor of building should be scribed with what we should term a machine line—that is, a base from which the engine, the line shaft, countershaft, and machines may be set, independent of each other and yet with accuracy.

To do this, take the centre line through the building both ways, and scribe it on the floors not with a scribeawl alone, but with a wagon maker's scribing hook, that will cut a deep groove. After striking with a chalk line, tack down a straight edge, and score the lines with the scribing hook, so that they will remain as long as the floor lasts, or at least as long as machines are to be added. Plum up or down, as the case may be, and scribe each floor in this way; whether machines are to be set on floors or not, there are sure to be some use for these base lines. If there are good floors, scribe the lines on the walls, drive stakes, or put them on the ceiling; have them somewhere, in each story, and in each room. When these lines are once made, the setting of machines becomes a simple matter, for lines parallel to, or at right angles to, them are easy to lay out, and shafts or spindles can be set true by measurement if they are flat levelled.

The common practice when a shaft or machine is to be erected is to square it from something which has previously been set by something else, on the principal of measuring by succession, a practice no mechanic would think of in other cases. If machines have iron frames and stand on masonry, they can be fixed by running melted lead or brimstone under the feet after setting and bevelling them. On earth floors, however, it is not necessary to build masonry for any except reciprocating machines. Stakes of locust cedar, or mulberry wood, set in the earth from three to four feet deep, and then sawn off level on top, make almost as good a foundation for any machine as masonry. It is, however, exceptional to find machines set on the ground, a plan that has nothing to recommend it, for when attempted there has to be a floor over a great part of the room, that usually costs as much as a complete floor would, if it had been laid down at the beginning.—*American Wood-Worker.*

THE BAND SAW.

A writer in the *Northwestern Lumberman*, who claims 15 years' practical experience in using band mills, says:—

We have been using the band saw mills for sawing logs for the last fifteen years with unvarying success, and at no time have we used a band mill, and we have used nine or ten of them that had not a sawing capacity of 20,000 feet of 1 inch boards per day of ten hours, and at times we have sawed 30,000 feet of softwood in ten hours. As to its average capacity, we sawed 6,000,000 feet in one year, with one machine running part of the time day and night. It has been a great wonder to me that the live, shrewd northwestern lumbermen have gone on from year to year, for at least the last ten years, without seeing and testing the advantages of the band saw in the manufacture of lumber economically, as regards both the lumber saved and the power required to manufacture a given quantity of boards for a given quantity of logs (scale measure) in a given length of time. A 60 horse power engine will run three band saw mills with a capacity of 20,000 or 25,000 feet each per day with a surplus of power to run the necessary edgers and cut-offs to trim the lumber. Take this as a starting point, then say the mills average 20,000 feet each and you have 60,000 feet per day of ten hours. On this amount you save in saw kiln (the band saw taking only one twelfth of an inch) over the ordinary circular saw in use at

least 2,000 feet, or one fifth more lumber from what goes into sawdust, for which in some cases furnaces are erected to burn the "hills," costing more than one band saw mill. This 12,000 feet destroyed would at least be worth \$10 per thousand or \$120 which is lost per day, or \$24,000 in season's sawing of 200 days. This \$10 per thousand is a low estimate for first class pine lumber, as a considerable proportion would be uppers, worth 50 per cent. more, which would make at least \$30,000, lost or saved, in 200 days' sawing. For instance, say three mill cost \$6,500 put up and started exclusive of power, you would still have a nice little margin of \$23,000 on 200 days' sawing, and also have your mills. To the mill men who value the lives of their men (and we know both the humane and thrifty do), we say we know of fifty hard saws in use that have never for the last ten years fatally injured a man. Another advantage in the use of band saw mills in pine or other kinds of lumber: You can saw a taper log or a partly rotten log, and get all the good lumber out of it there is in it, which you cannot do with a gang-saw.

LOGGERS AT MEAL-TIME.

They literally chuck their food; and it would be more correct to say of them at the table, using their own unique term, that they are "chucking" than that they are "eating." When a meal is ready the cook opens the door and calls and the men rush in with a silent, grim, determined energy, that is suggestive of a gathering of old soldiers in the banquet rooms of Valhalla. The secret of this is that the men all wear rubbers or packs, and so move on the floor without noise; and the eagerness with which they crowd forward, bareheaded, with swinging arms and leg striding far, and all without a sound, almost makes the beholder wonder if he has not by some mistake got down into the wrong place. Hungry men are reticent. The sensation of hunger overpowers all sense and reverts civilization for the time to savagery. These men march in and seat themselves at the tables without a word. If there were only one table and food enough for a dozen of them, they would, it is easy to see, scramble and fight for it like savages, and the strongest one among them, that is, the greatest bully and glutton, would be elected chief. But there is plenty, as they know, and so each goes to his place, loads his plate and begins chucking without ceremony.

For five minutes you hear nothing but the incessant clashing and clattering of knives and forks against tin plates, and see nothing but the upward jerk of a hundred hands and the downward bob of fifty heads as, midway, the well trained jaws, agape, are catching the chuck on the fly! By that time the stomach has got fairly to work, the sensation of hunger is relaxing its grip, the social instincts begin to exert themselves again, the savages are once more becoming civilized. Here and there you hear them talking. Quip and quirk are on the wing, contentment is in the air. In five minutes more the place has become jovial and the more skillful chuckers are leaving the room with pipe and tobacco in hand, to finish the meal with the inevitable smoke. Then off to work, and a repetition of the same scene at the next meal.

Salt meat, often half-boiled, potatoes ditto, fried pork stuck fast in half cold pork grease; good fresh beef rained forever here and here after by being fried while swimming in pork fat; fresh beef boiled and served without seasoning of any kind; beans that sometimes are scooped from barrel to boiler and so "baked" without change of water or vessel—a deed against which every Boston stomach must rise in protest—bean soup served with the beans so hard that they will break between your teeth, and the water as clear as when the work began, but with its transparency a trifle obscured by bits of broken cracker that seem to float and sail around their iron-bound coast; hot sado biscuit, a spoonful of flour to a quart of soda, it seemed to me, very short with oceans of lard; mince pies of hashed beef and pork, salt and fresh dried apples, with molasses to suit, and raisins thrown in to support the crust that is made of chilled pork fat sprinkled with flour; tea that is boiled down, filled up and boiled

again, and kept boiling from meal to meal, dished out from the boiler grounds and all, into measures that are half filled with cold or lukewarm water, and drank from tin cups whose inner surfaces are coated with the brown and dirty looking sediment of the over boiled tea, without sugar or milk—all this sort of thing the boys endure day to day with an amiability that would make new England dyspeptics miserable with envy.

But it must not be understood that camp cooks are without skill. They are often good cooks. Most of them can make excellent yeast bread, which is, after all, the staff of life. But there is so much work to be done, and only the one man, with one, or at most two, chore hands to assist him, that much of it must be hurried over and slighted. From four in the morning until eight or later at night the cook must be on duty the season through. "Mike," our French cook, is as good as they average. He is active and industrious, and will cut more meat, in his way, dish up more potatoes, hash, fried pork, stewed steak, soda biscuit, baked beans, etc., in five minutes than any other man I ever saw at work, and they way he will place and arrange dishes on a table is luminous with dexterity.—*Charles Ellis in the Current.*

CORKS.

Few persons have any conception of the important part which the cork plays in the commercial world.

Cork-tree forests abound in countries bordering on the Mediterranean, though the finest quality is found in the Spanish peninsula. There the cork-tree is cultivated especially for its bark, the gathering of which is an industry in which the whole communities are engaged. The bark is composed of two concentric layers. The interior is a fibrous tissue, called the mother or tannin, while the exterior is a spongy, elastic substance, the corkwood of commerce. The cork harvest occurs in summer, when the tree is in full sap. Circular cuts are made in the bark with a hatchet, while a vertical one is also made. The two edges are then raised and the handle of the hatchet used to strip them downward. A tree is not unbarked until it is 20 or 30 years old.

Corkwood, in its crude or uncut state, varies in value, according to its purity. This difference in price accompanies it through the various stages of manufacture, and classifies it for its multiform uses.

Machine-cut cork are of different grades, variety and prices, and are devoted to all sorts of purposes. The finer quality are used for mineral waters, and other carbonated beverages, which are dependent upon the retention of the carbonic acid gas. The finest cork, that which is almost free from the black and crumbling streaks found to a greater or less extent in all corkwood—is hand cut by experienced workmen, armed with razor-edged knives of peculiar shape. These are principally used in the bottling of champagnes or other fermented wines, and command a high price.

Manufacturers of champagne, in addition to the labels which the place upon each bottle, have adopted a system of branding the corks with the makers' names. Of late there has sprung up a new industry, the buying of old corks which bare the brands of celebrated makers, and for which high prices are in most instances paid. The object in the purchase of these corks is manifold. While a great portion of them are bought by the original owners of the corks as a matter of protection or for other purposes, the majority find their way into the hands of manufacturers of inferior goods.

In order to push their respective wines, the agents of the foreign houses have resorted to the device of buying back their corks. This serves as an incentive to dealers and to waiters to force upon customers brands of champagne on which they can make the greatest perquisites. With this object in view other agents are employed, whose duty it is to visit all the leading hotels, restaurants and wine rooms in the country, and offer the waiters or attendants employed therein sums ranging from five cents to a dollar or more for every cork bearing their brand that is returned to them. With such an inducement it is not surprising that waiters will extol the wares of the highest bidder.—*Bottlers' Gazette.*

PRACTICAL SCIENCE.

The contractors for the Suakim and Berber railroad have decided to adopt electric lighting in order to encounter satisfactorily the obstacles as to climate, etc., of which so much has been said. By this means they intend to construct the road during night time, when the temperature will be such as Europeans can withstand with tolerable ease, while during the heat of the day they can take their rest. To carry out this arrangement a firm of Leeds, England, have already supplied two complete installations for the electric lighting.

The engine boiler and dynamo for each set, as well as the support for the lamps when not in use, are all neatly fixed on a specially designed light railway truck. When in use the lamps will be hung from iron tripods 32 feet in height, and placed at intervals of 30 yards along the line of the proposed railway. The tripods are made of light iron tubing jointed at the top and made telescopic in the middle, so that they can be folded together, removed and united whenever required with the least possible trouble. The insulated cable to convey the electric current to the lamps is coiled on reels, two being supplied with each installation. On these reels the cable can be run off or wound up, as required. The lamps, which are of 2,000 candle power each, can also be moved forward, one at a time, from one end to the other as the work of construction proceeds, a simple switch arrangement being provided for the cutting off of the current from any particular lamp without interference with any of the others. The dynamo machines are of the Brush type and are driven by Parsons' patent highspeed engines. The boilers are of the locomotive type and are supplied by means of a feed pump with water from a tank fixed under the dynamo machine which latter, by this means, is also kept cool during work. The carbons of the lamps are arranged to burn for a period of 16 hours.—*Iron Age.*

THE WALNUT.

A writer in *The Garden* (London) wonders why this tree is comparatively but little planted, a singular fact when the beauty and value of its wood are taken into account. For gunstock and much of our fine sorts of furniture, walnut timber is valuable. Walnut trees, moreover, are free growing on almost all kinds of soil, and the crops of nuts which they produce would pay at least the rent of the land on which they grow, while freeholds might be purchased with trees of fourscore years of age. Walnuts in a landscape, also, are trees of mark, their magnificent heads of fine foliage in parks or paddocks rendering them especially adapted for such situations. They associate well with oak, beech, elm, sweet and horse chestnut, as well as with various other trees, and they do not rob the land more than their companions do. Their smooth, glossy leaves are washed clean by every shower, and the foliage is not so thick as to throw the rain of the grass or to keep air currents from circulating freely among the branches. There are, therefore, no trees either in park or pasture under which herbage grows better than it does under walnuts. Besides, walnuts come into leaf late, make their growth quickly, and lose their foliage nearly all at once after the first autumn frost. Thus a chance is given to take the leaves out of the way, so as not to injure the grass, while the shining dark young wood, with the grayish mature limbs, are left full in view. As to any tree that will grow more quickly into a size to be useful, I do not know where to look for it. I have seen old walnut trees that measured from 60 feet to 90 feet high; diameter of branches from 60 feet to 96 feet; and of bole or trunk from 3 feet to 5 feet diameter; and no doubt large trees are elsewhere to be found.

Fire in a Colliery.

LONDON, June 3.—A fire broke out in the Phila Colliery, near Durham, to-day. Three hundred miners are in the pit. All attempts to subdue the flames or render the miners assistance have failed. Great excitement exists, and is feared the majority will perish.

Later despatches say that all but 22 miners have been rescued. Those missing are supposed to have been killed. The fire was caused by an explosion of firedamp.