SETTING AND FILING SAWS.

Having had charge of table saws for a good many years, and wishing to get all the work out of them obtainable, I have experimented considerably in shape of teeth, setting teeth, swaging teeth, jointing saws, etc., a few points in regard to which it may do some one good to know. Firstly, a saw should fit the mandrel, not tight, but slip on without play. Next, it should be jointed up true, which I do by holding a piece of one and one-quarter gas pipe, twelve inches long (the size or length is immaterial except that that is the handiest size) square against the edge of the teeth. The saw should run full speed. By taking hold of each end of the pipe and crowding down on the table top and up to the saw, it is soon jointed up round and with the corners of the teeth full, which will not be the case when a stone is used, as the saw eats into the stone and rounds the very part that one wants full. The gas pipe is soft iron and does not glaze or harden the points of the teeth. I file the front of the teeth nearly square across the saw, but file from both sides. The old rule for slitting saws is to have the front of tooth line to a circle of half the diameter of the saw.

I file to a circle of two-thirds the diameter and leave the teeth quite crowning the back to give them strength. I take off the saw to file and set. I prefer setting to swaging saws. I set with hammer, by laying the saw down on a little table with a flat piece of steel, very hard, beveled off on the edge to an angle of 25 degrees; put the point of tooth three-sixteenths over, and hit it directly on the point. A saw set in this way runs much easier than to have the set extended back on the tooth. We make on one table 5,800 cuts through two and three quarter inch white oak plank, 28 inches long, each day of ten hours, with 14-inch saws. The mandrel should be lowered so that the saw does not stick more than one-quarter of an inch above the work.—*Correspondent of Leffel's Mechanical News.*

WHITEWOOD.

Whitewood is gaining favor rapidly. Not many years ago it was used in this vicinity chiefly for coffins and waggon box boards. Further south in the sections where the wood grows, it has been used in finishing to a considerable extent, but builders who could readily get white pine, discarded whitewood.

Until recently, for finishing purposes and for the manufacture of sash, doors, and blinds, whitewood was little thought of north of those sections where it grows plentifully. A representative of one of the largest sash, door and blind factories in the country recently said in this office that if he were building he would have little choice between pine and whitewood for the purposes above mentioned. He admitted that his interest is purely identified with white pine, and that he would not admit openly that whitewood is the peer of pine; such, however, in his opinion, is a fact. This a big admission to come from such a source, but one that is based on a good foundation.

It can be easily understood why whitewood can be used successfully for many purposes for which pine is employed. It is more inclined to twist than pine, but this is not much of an objection where it can be used in small pieces, or if in large ones securly fastened. Even gum, the most rebellious wood that grows out of the ground, if properly nailed, answers for finishing admirably. Whitewood is very easy to work—it probably ranks next to pine in this respect—takes a good finish and works a close joint. There are complaints against cypress for sash, doors and binds because, it is said, it is too hard a wood to drive together and make a perfect joint. Too much work must be put on the pieces where they come in contact to make them fit closely. In pine work this extra work is unnecessary. The wood is so soft that it readily gives, and the tight joint is at once produced. There are others that claim that such a fault with cypress not exist; but that it does somewhat there can be no question. Not that perfect cypress sash, doors and blinds are not made, but it requires a little more attention and labor to make them than it does from pine. In regard to softness, whitewood probably ranks next to pine; it is not quite so easily worked as pine and a little more easily than cypress.

The easiness with which whitewood can be smoothed is greatly in its favor, as it is prepared at light cost for the paint. Its ability to hold paint well is questioned, and justly where the lumber is used on the outside of the building. Place two boards, one pine and the other whitewood, side by side in an exposed condition, and paint them at the same time with the same number of coats, and the pine without question would look the better for the longer time. For inside work, though, any difference that may exist in this regard would not count for enough to take into consideration. The paint holding quality of whitewood is good, while in white pine it is extra good.

The cost of whitewood is decidedly in its favor. When clear whitewood can be bought for $20 per thousand less than clear pine the difference shows up in the light of a big inducement to the consumers of lumber. With many there would have to be big advantages in favor of pine to counterbalance this difference in price. Twenty dollars in a thousand of lumber is a good deal of money, and when such a difference exists there ought to be more points in favor of the higher price lumber than in this case really exist. As the prices of different kinds of lumber are now raging, whitewood, considering its value, is the cheapest finishing lumber to be had.

With the popularity that whitewood is winning it is not to be wondered at that whitewood stumpage is increasing in value, and it may be expected to be worth still more. Not many years ago it did not take much money to buy as much timber as any man cared to own; and few cared to own much of it; but now it is sought not only where it can be immediately gotten at, but in the out of way places which will necessitate the timber standing until improvements in streams and in the way of building railroads are made. It has also come to light it is not so plentiful as many, a few years ago, supposed it to be. In some of the best Tennessee districts a good share of the available whitewood has been cut; a big proportion of it when it is considered how short a time the whitewood mills have been at work.—*Northwestern Lumberman.*

A NEW SOURCE OF ASH SUPPLY.

Ash timber plays an important part in house building and manufacture. As a flooring and finishing wood, it is the peer of any that grows in the forests.

It is a fine cabinet wood for certain classes of work. For agricultural implements, wagons, and other manufacturing uses it has become a regular stock material. But there is one form in which ash is employed that renders it indispensable, and that is for oar making. A white ash oar is the best that ever strained the muscle of man. This is on account of its long, tough grain, and its extreme lightness when perfectly seasoned. Ash is the only wood used for this purpose, because it is not only tough and light, but it does not absorb water when seasoned, and consequently does not warp. It is also not liable to sliver by wear of the hands. Such is the exclusive adaptability of this wood for oars, that when the ash supply is exhausted, steel or other substitute for wood will have to be used.

The making of oars is a particular and separate industry. The oars of this country are preferred, and are shipped all over the world, because our ash is considered better than any other for making oars. The British and French navies, as well as the merchant marine of all Europe, are supplied from this country. Ohio and Michigan ash has hitherto contributed to the manufacture of oars, but now it is growing scarce, and operaters are reaching around for the discovery of new supplies. It is now thought that the ash growing in the lower Mississippi bottoms is admirably adapted to oar making, and if for that purpose, certainly for any other to which ash may be applied.

Mr. J. LaDue, whose headquarters are at East Saginaw, Mich., is probably the leading oar maker in the country. He has four mills, one at Breckinridge, Mich., one at Montpelier, Ohio, a third at St. Mary's, Ohio, and a fourth at Carson City, Mich. He not only supplies a vast demand in this country, but ships quantities to Europe. His make of oar is used in the British and French navies. Latterly, Mr. LaDue has found it difficult to find timber enough of the right sort, and at reasonable prices, to keep his four mills running. This has led him to go South, for the purpose of investigating the ash that abounds on the bottom lands of the Mississippi and Yazoo Delta. After spending some time in the northern half of the Delta, he recently returned, bringing a good record of his experiences, and specimens of ash which were cut in Conhoma county. Mr. LaDue and his companions travelled over portions of Quitman, Tunica, Coxhoma and Sunflower counties and found large and abundant growths of ash, besides oak and other timber. The ash he regards as of excellent quality for the various uses to which it is put, and much of it as especially adapted to oar-making. The latter statement is certainly corroborated by the specimen left at this office.

It is stated that Mr. LaDue will purchase large tracts of land in upper Sunflower county, and proceed immediately to put in machinery for getting out oar timber, and that he will also utilize the oak and other merchantable woods. It is understood that he is highly pleased with the outlook. He had been led to think by timber-lookers who had preceded him that the ash of the Mississippi and Yazoo Delta was of such a heavy variety, when seasoned, that it would not answer the purpose for oar-making; but his personal inspection has convinced him to the contrary. He is also happily disappointed as to the quantity of ash to be found in the Delta, the growth being much more abundant than he had been lead to expect.

If Mr. LaDue has not overstated the matter through enthusiasm, there will be others who will seek the Delta for a supply of ash. Already quite a movement in the direction of the Mississippi bottoms on the Arkansas side has been begun. Considerable ash is coming to this city from the vicinty of Helena, and the Helena Lumber Company, with Moline, Ill., connections, has lately completed a mill for the cutting of the ash in that vicinity and shipping it north. Without a question there is to be an increase of going South for ash. The Mississippi bottoms will be the favorite region of ash supply, because it is to be found there in greater abundance than elsewhere in the South, accessible by river and rail to the manufacturing centres of the Northwest.

The Mississippi and Yazoo Delta, now that it is known to abound in ash of excellent quality, is sure to attract a large share of attention from hunters for that timber.—*Northwestern Lumberman.*

WATER POWER IN AMERICA.

The extraordinary development of waterpower for economic purposes is an American idea. In no other country has it been so successfully utilized. This will be apparent by considering some of the rivers which have been dammed for the benefit of mankind, and the force which they furnish reduced to the standard of horse-power: The Passaic at Paterson, New Jersey, 1,000 horse power; the Merrimac at Lowell, 10,000; the Mohawk at Cohoes, 14,000; the Connecticut at Hadley, 17,000; the Androscoggin at Lewiston, 11,000; the Housatonic at Canaan Falls, 3,000; the Mississippi at the Falls of St. Antony, 15,000; the Oswego at Oswego, 4,000. The sum total of these is 75,000 horse power, as estimated at a given point on each river But this is used over again on an average not less than three times. This would show a large total of 250,000 horse power. There are also very many smaller streams in all the hill sections of the country which are utilized and may furnish, used and unused, power equal to the last named total of 250,000; thus giving a grand total of 500,000 horse power; distributed over a wide extent of country and supplying in their way, the wants of 50,000,000 people.

But these are only in minor powers, so to speak of the hills and valleys. The grand dominating power that could absorb them all and still have room to give hospitable refuge to four times as many remains to be noticed. It is the Niagara river. From data furnished by the United States lake survey bureau in 1875, it appears that the average flow of the river above the falls is 10,000,000 cubic feet per minute. Converting this into horse power under a head of 200 feet, we have a grand aggregate of 3,000,000 horse power—a mighty force that would supply the economic wants of 200,000,000 of people.—*Lumberman's Gazette.*

THE CYPRESS.

The cypress, of which there are three varieties, the red, and white or bald, is gaining in favor every day in the south It is heavier than white pine, as a substitute for which it is being used, by several hundred pounds more per thousand feet. This wood contains a very small amount of rosin, and a very high polish can be given it; in fact, because of its not being affected by moisture, it is being used for cisterns, hogsheads and sugar, molasses and honey barrels. The red cypress is the favorite, and some of it is so heavy that it will sink upon being placed in the water. The white variety is much lighter and will float after being deadened shortly before cutting, but it has not the firm grain of the red. The red cypress has a straight trunk with a small top, and the bark cut has a reddish tint.

In the south cypress is used principally for shingles and sash, door and blinds; it also makes a handsome finishing lumber when used with white or yellow pine as a contrasting material for door and window casings or for wainscoting. Many of the shingle manufacturers have only their shingle mill, and cut up entire sound logs into shingles alone, and thus, while producing fine shingles, waste much valuable timber that might be put to better use. —*Ex.*

TO SAW ROUGH TIMBER.

All tough timber, when the logs are being sawed into lumber of any kind, whether scantling, boards or planks, will spring badly when a log is sawed in the usual manner, by commencing on one side and working toward the other. In order to avoid this it is only necessary to saw off a slab or plank, alternately, from each side finishing in the middle of the log. We will suppose, for example, that a log of tough timber is sawed into scantling of a uniform size. Let the sawing be done by working from one side of the log towards the other, and the the ends of the scantling will all be of the desired size, while at the middle of them will measure one inch broader than at the ends. After the log has been spotted, saw off a slab from one side; then move the log over and cut a similar slab from the opposite side. Let calculations be made by measuring before the second is cut off, so that there will be just so many cuts, no more and no less, allowing for the kerf of every cut. If the log is to be cut into three inch scantling for example, saw a three-inch plank from each side, until there is a piece six and a quarter inches thick left at the middle. The kerf of the saw will remove about one-fourth of an inch When a timber log is sawed in this way, the cuts will be of a uniform thickness from end to end. Now turn the log down and saw the cuts the other way in the same manner, and the scantling will not only be straight, but of a uniform size from one end to the other, if the saw be started correctly. —*Sine's Lumberman's Form-Book.*

English Patents and Canadian.

According to the new English patent law, specifications of patents are to be published in blue-book form, which is to be offered for sale before the patent is granted. *Engineering* condemns the new arrangement as likely to afford opportunities to unscrupulous persons who would not be slow to avail themselves of their advantage. We, however, do not share the pessimistic views of the journal mentioned. Referring to our own country we are sure that a good many suits for infringement on patents would never have arisen if the Ottawa Patent Office had similar regulations in force.—*Ex.*

THE smart engineer who knows a boiler cannot be exploded if a full gauge of water is kept in it, and who, to prove it, sits on the lever of safty-valve while he eats his lunch, is liable to be transported very suddenly to the land where "firing" is a continous business, unrelieved by boiler explosions or any other kind of pleasant recreations.—*Ex.*