

RUNNING CIRCULAR SAWS.

I HAVE seen men who, to judge by the intelligence they displayed, had better be running an axe in a wood yard. They would jamb a saw through a board like a man running a beetle and wedge. If the saw choked up and stopped, they pull the board back a foot or two, take a breath themselves, then bring the lumber sinp bang against the saw again, stopping it dead. Something has got to slip; the saw belt is the thing that usually does it. The belt can't run off for it has a cob house of edgings around it. Like a horse in a horse power machine, the poor belt can kick as much as it chooses, but must run as long as it holds together.

Sometimes a well-regulated saw will bind. It will cut into the work and cut a wider strip than can pass between the saw and fence. Now the average man tries to remedy matters by pulling the work back. The back of the saw cuts itself clear, but there is a spot the width of the saw that has not been touched, so the saw runs in there again and is just where it was before. The trouble is caused by the saw getting hot. It expands and dishes over. The saw always dishes towards the coolest side. The cool side is the sharpest or may be has a trifle the most set in it.

When a saw acts as above, lift the board up square off the saw. If you have just started into a long board bear down on your end, and let it swing upon the edge of the table and raise clear of the saw. If nearly through the board, let it swing upon the back of the table, and raise your end of it. Be very careful to keep the board snug against the fence while lowering it back upon the saw. The cool air striking on the saw takes out all the dish, the saw straightens itself up and cuts itself clear as the board is replaced, and will go along all right. There always is one thing to look out for when a saw cuts this caper, and that is to see if the saw does not need setting or filing. Nine times out of ten this is the trouble.

In jointing boards upon a sliding carriage you will sometimes feel the board crawl sidewise as the saw crawls along. When this happens just take the saw off and play dentist for a few minutes. When a saw smokes (and when a man does also) it is time to quit. Saw the timber, don't burn it off. File a saw before it gets dull. Don't follow the rule one old chap had, viz.: "When edgings would slide off the saw without catching, then file the saw." Any saw that can be filed with a three-cornered file, should need but three strokes of the file for each tooth, two for the face and one for the back. It does not take long to go around a saw at this rate, and it can be done every time if the saw is filed before it gets too dull.

Sometimes when taking a saw from the arbor, a blue spot is found upon one or both sides of it. Just look that saw over, and see if there is not a spot of gum or dirt close to the blue spot. Glue is bad to get on a saw. Pitch is worse, and there is something in maple sap wood that is worse than either. A spot of gum upon a saw will cause it to heat, and the blue spots tell the story. Take a piece of sand stone or a soft Scotch "rag," wet the saw and scour off all the dirt or gum. Blue spots do not hurt the temper of the saw, but they are apt to spring the saw, and cause it to take a permanent set; and the only cure is hammering.

Hammering a saw is the sawyer's bugbear. Almost every one of them has tried to take a kink out of a saw by hammering, and many have failed in the attempt. The way they did was to lay the saw on the buzz planer and rounding set up, then take a five-pound hammer and attempt to beat down the bent spot. Just like putting a saucer upside down and trying to hammer it flat. A man might as well attempt to straighten a dent in a tall hat by placing it on the floor and pounding on the top of it with the heel.

Take a steel straight-edge long enough to reach across the saw. Hold the saw nearly plumb upon your finger (if a small saw) and locate the bend. It is generally a little round spot. Lay the saw, rounding place down, upon the anvil. If you can not afford to own an anvil to true your saws upon, you are too poor to own a saw and had better sell out. Have a little hammer not larger than your finger. The face should be round and convex and not over an inch in diameter. The pene of the hammer should never be used, except

in severe cases. Strike one or two blows upon the bent place. Be sure that the saw lays true upon the anvil, or you may hammer until you are tired, for all the good it will do. After striking one or two blows, test the saw again with the straight-edge. If it shows any improvement, strike a few more blows, and test again. If no change is seen, strike a couple of hard blows and make another test.

The principle of the thing is, that the convex side of the saw is larger than the other side, so it puffs out; the hammer blows upon the smaller side, stretch the surface, and have a tendency to correct the error by swelling out this side, and, of course, shrinking the other. Sometimes hammering as above only makes the matter worse. In this case mark the place with chalk or by some other means and strike several blows in a line extending from center to circumference through the bent spot. Strike each side of the spot so as to stretch the whole saw to agree with the full place.

The simplest bend to remove is when an arc of the saw is sprung one side and the line of the bend follows the cord of the arc. All that is needed to cure is a number of light blows all in a row upon the hollow side as above, and right in the hollow or bend. The worst case to deal with is a twist, part of the saw bent one way, part of it another, and the rest of it both ways.

In this case, go for all the low places one side first. Get them all out and the saw will dish. It is very easy to deal with a dishing saw—just hammer the rim. Take the worst saw you ever got hold of, and if you can hammer it so as to be dishing, then the battle is yours. A few good blows at the roots of the teeth, and that saw is good for something.

Once get it through your head where to strike a saw and you can easily true up a bent one. If you have an old saw that you have always kept to look at, try your hand on that. Pick out a true place in it, and strike there with the hammer, and see what the effect will be. Strike four or five blows in a line and measure the bend they cause. Now, try to straighten the saw back again, always bearing in mind that you can not drive down a bulging place. You must coax it down. Do it as Paddy coaxed the pig to go ahead, by hitting him on the nose. "If the mountain won't go to Mahomet, then Mahomet must go to the mountain." If a certain part of the saw is too big, stretch the rest of the saw to correspond. It doesn't take much hammering. Have often seen saws hammered too much. It would spring the saw the other way every time, and it would have to be hammered elsewhere to get it back again.

Hammering wants to be done like filing, "just before it is needed." A small kink needs but three or four taps of the hammer. Let it go and another kink gets in, the saw springs out of shape, or you may have to get an expert to hammer it in shape again. Don't let a saw run a minute after it needs fixing. It is only a waste of time, power and elbow grease. It is ten times as much wear to the machinery, saw and man. If we could only make the men who tolerate dull, untrue saws believe the above, they might get rid of lots of hard work and poorly-cut stock.

One day while passing through a shop, a circular saw was heard making a noise as if it were having an awful hard time. Every time the sawyer forced a board against the saw it would slow down and stop after going eight or ten inches. The countershaft kept right on, and didn't care what the saw was doing. Upon going around the saw table where the belt could be seen, it was found to be sagging badly. It was too loose. The remark was made to the sawyer that "if he took up the saw belt the saw would work better." The sawyer said, "I'll be— if I take up any belts round this mill unless I have an order." That man can not be blamed, either. The foreman would fuss and fret around a man every time he found him doing a little repair work, and it shows the foreman does not know his business. The men get so they hate to mend anything. It is hard, in any shop, to make the men "take a stitch in time," but when the whining boss runs the shop, then every crack goes until it breaks clear off.

Patch up the little breaks as fast as they are found; things will work better. If the corner of a cement joint in a belt starts up, don't let it go until the belt breaks, but warm the belt, work in a little cement (one-third

fish, two-thirds common glue), hammer the parts together and drive in a few pegs. Five minutes will do the job, but it will take half an hour to mend the belt if it runs a week longer without fixing.

Some sawyers raise the table until the saw barely reaches through the work. They claim that the saw cuts better and easier. This is a mistake. It puts double the work on the saw. For example: Take an eight-inch saw and a pine board. When the board runs close to the collars, the saw cuts nearly square across, and the action of the saw is to cut off the grain of the wood and split off the pieces thus cut off. This agrees with the action of cutting tools in general. When the table is raised, the tendency is to split before. This, with the increase of the section upon which the saw acts, which is double, makes it much harder for the saw. The chip is smaller, but does not compensate for the extra section of cut.

Always run the saw as high as possible. If the pulley is small, or the machine is bolted down, raise up the saws until the collars almost project through the table. Keep the saw sharp and true. Use more oil than cuss words. Then your saw will cut a great deal of lumber, and do it easily.

THE FAITH OF INVENTORS.

UNSHAKEN faith in their ideas, and a determined perseverance to overcome obstacles, are gifts with which inventors have been endowed, or, in common parlance, they have their inventions "on the brain"—mount their hobbies and ride them continually. If they were influenced by rewards, or hopes of reward ultimately, it would seem, in the eyes of the world at large, that there was a "method in their madness," and that the tangibility of wealth was the terminus of the "hobby" race. But we find a large proportion of inventors unbiased and uninfluenced by any hope of wealth, money or reward. They labor and experiment as though their life depended upon it; they labor with the hope only of ultimate success in accomplishing what they proposed to perform, and the labor is with them a labor of life and love. This labor is ever constant in their minds, ever uppermost in their thoughts, ever exerting itself in every movement and every action. They are determined to overcome every resistance. It is an example of the power of mind over matter—of intelligence over the forces of nature.

And what does the world not owe to inventors? Civilization, arts, and commerce are the fruits of the inventors' "hobbies," and the greater part of these fruits have been the product of toil, many years of labor, at a cost of life, privation and poverty; yet such was the inventors' faith that all obstacles have been overcome, and often after the results are obtained the fruit is left for others to mature and gather. Galileo declared the world "did move," and a prison was the result. Columbus, on the eve of his discovery, was nearly being thrown overboard by his discontented mariners. Harvey, the discoverer of the circulation of the blood, and Jenner, who first practiced vaccination, may be cited as examples of how great discoverers may be treated by the world before their discoveries are appreciated. Among the mechanics of a later day, Fulton, who was declared crazy; Colt, who had to mortgage his little stock of tools to obtain money to make his pistol; Goodyear, patiently toiling to obtain his results in the manufacture of rubber; Howe, bravely meeting all adversity to finish and introduce the sewing machine, may be cited as a few—very few—examples of struggling but afterwards successful inventors. The list might be extended almost *ad infinitum*. Yet when success is achieved and the true value of the invention appreciated, the tardy meed of praise is tendered to the persistent faith of the inventor who accomplished the results.

A THREE CENT STAMP DOES IT.

On receipt of a three cent stamp we will mail free to any address a copy of our little hand book entitled "Rules and Regulations for the inspection of pine and hardwood lumber," as adopted by the lumber section and sanctioned by the Council of the Board of Trade, of Toronto, June 16, 1890. Address, CANADA LUMBERMAN, Toronto, Ont.