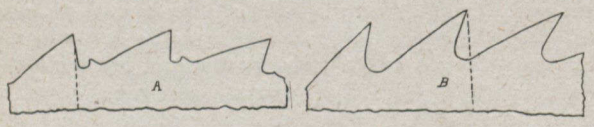
turers of the machine should come in for censure. They are trying to produce a machine at too small a price. The users are very short-sighted. I consider a poor machine dear at any price, while a good machine will pay for itself in a short time. The successful manufacturer is generally looking for the best machine, not for the one that can be bought for the least price.

TEETH OF CIRCULAR SAWS.

The two illustrations show how some operators of circular saws allow the teeth to become dilapidated. A represents one saw before treating, and b after treating. To make a bad matter worse, it had little or no set. It was hard to conceive how they could possibly run a saw in such a dilapidated condition. If the operators had been in such run-down condition as the saw, they would have been taken to a hospital long before the saw was taken to the mill for repairs. Because of the power it took to run the saw, the belt slipped. They put on belt dressing, then tightened the belt until the boxes were smoking hot. Yet this did not overcome the difficulty. They would saw, then wait; then saw



again, and so on, for a time. Finally the fever became so high it was of no use to try to run the saw longer, hence they brought it to the factory. B shows the condition of the teeth when it was sent home. Note the difference.

In a the dotted line represents the direction to the centre of the saw, showing the teeth filed so far back on the point that they did not have any hook at all; even filed back of the hook line. No wonder they had hot boxes, tight belts and had to use belt dressing. The line in b represents the direction to centre of saw, showing enough hook to insure fast and easy cutting, with even set or spread to the teeth equal to five gauges. These teeth will cut without having the belting so tightly strained as to cause excessive heating. I have often thought that if the men who push lumber against saws would take time to study the numerous catalogues showing the general shape of saw teeth, they would try to keep the teeth as nearly as possible like those shown.

CUTTING HEAVY STOCK ON ROTARY SAW.

There seems to be among some veneer-cutters a dislike to cutting heavy stock. Many an operator who is first-class on 1-16 or thinner, seems to be up against it when it comes to cutting ¼ or ⅜ stock on a rotary machine.

Of course, it depends a good deal on the size and style of the machine and the kind of timber to be cut. It would be foolish to try to cut ⅜-inch stock on an 8-foot machine and expect to do first-class work. The same may be said of trying to do good work on a shorter machine with too small spindles, or a machine that is loose in its bearings, or to cut such stock out of logs with soft centres while using small chucks; but with the right kind of machine and logs, there should be no trouble in cutting heavy stock, and cutting it well.

In the first place, a great many make the mistake of grinding the knives with too long a bevel. You ask ten veneer-cutters what the proper bevel for a knife should be, and nine out of the ten will say, "Three times its thickness." While this is true of a knife used for cutting thin stock, it will be altogether too thin for heavy stock. In fact, I prefer a knife ground with a shorter bevel for any kind of stock. My rule is two and one-fourth times the thickness for heavy stock, and a little thinner for thin stock.

Again, the knife should be set at the proper angle to the block; not to be set too far back, as this will cause the machine to run hard and split the block, thus spoiling much valuable timber; neither should it be pitched too far forward, as this will cause it to lean into the log, making the veneer run thick and thin. It should be set so that the block turns freely against the knife and cuts the veneer instead of tearing it off. The pressure-bar should then be adjusted so that it exerts the same pressure the entire length of the log.

A common mistake that is made is too much pressure. Many veneer-cutters seem to think if they can only get pressure enough on the block the veneer is bound to be all right. In cutting ⅜-inch stock, 1-32-inch of pressure is plenty. In fact, I do not commonly use as much as that; more than that makes the machine pull hard, thus spoiling more blocks and making quite a difference in the fuel bill in the course of a year. The operator should see that his bearings, especially the spindle bearings, are all tight, also that the knife carriage is not loose in the ways.

The blocks should then be fitted right; they should be boiled, but not too long; too much boiling makes them soft and woolly. In cutting hard maple, seven hours' boiling, with steam at 80 to 90 pounds pressure, should put them in first-class condition. They should be cut while hot; by no means should they be allowed to lie in the skids and get cold.

A cutter should study his timber. Some needs boiling longer than others. Take poplar, for instance. If it should be boiled as long as one would boil maple, it would not be worth much for veneer. To cut veneer, whether thick or thin, one must study the different kinds of timber. He must know his machine, its weak as well as its good points; in fact, he must be a mechanic, and not only understand his machine, but keep on his tiptoes every minute. He cannot chuck his block, start his machine and expect it to do the rest. It must be watched all the while, else one is bound to get some poor veneer.

CRACKS IN RESAWS.

There are filers and sawyers who claim that cracks are the result of bad saw-fitting and that there is no excuse for having them. Now, all this kind of talk is largely "hot air." There may be filers who are lucky enough not to be bothered with cracks, and sawyers who have never run a cracked saw, but it may not be because they are more expert than others. Perhaps they have not yet run up against it good and hard, or perhaps they are taking cautious measures to avoid trouble. There are lots of filers who do have cracks to contend with, but they don't let anybody know it, if they can help it.

What a lot of dodging, slyness, trickery, etc., there is among the craft! If silence is golden, then some of the brothers ought to be "real yellow" by this time. I worked with a filer, as assistant, and a very close-mouthed man he was. He would sidetrack me at every opportunity, even to sending me on some fool errand when he was about to place solder and borax in the braze, so I could not see how it was done. Now what do you think of that? There is lots of jealousy and rivalry among band saw filers, and in some cases a bitter hatred. One filer asked me what caused a crack. I said, a saw tensioned to the extreme cutting edge and having too full a back, will cause some cracks. A bad blow from a