under exceptional conditions, because the operators are working intelligently and even scientifically. The use of the new steel must be worked out into an accepted practice in its treatment of the steel as such, in methods of sharpening, the form of cutting edge, and in other ways that must become general in their acceptance before the steel can be applied successfully in a universal way. This will take some time, but nevertheless the development of the new practice will go on much more rapidly than formerly as soon as the manufacturers of woodworking machinery shall have adopted it as standard.

As to the use of the steel for heavy reduction purposes there should be an advantage in its use, as in metal, but not to such great extent. The faster feed and the better ability to maintain an edge will count for a great deal, but it should be stated that in the way of rapid reduction the old steels have been entirely satisfactory, and seldom has a task been found beyond the temper of the cutting blades. For special purposes, doubtless, the new steel will be valuable, as, for instance, in the machining of very hard woods. As for the form of the knives the tool holder is coming into vogue for the purpose, the blades consisting of thin, narrow strips securely clamped to the head.

RULES FOR SAW TEETH.

A considerable difference of opinion exists as to the best forms of teeth for different woods. Speaking generally, for ripping with a circular saw pine and soft woods, generally large, acute, and well-pitched and set teeth are necessary, whilst for hardwood more perpendicular teeth of less pitch and set are required. Powis Bale, in Saw Mill and Wood Converting Machinery, says: "If a line be drawn through the points of the teeth the angle formed by the face of the tooth with this line should be, for cutting soft woods, about 65 to 70 degrees, and for cutting hard woods about 80 to 85 degrees. The angle formed by the face and top of the tooth should be about 45 to 50 degrees for soft wood and 65 to 70 degrees for hard. It will thus be seen that the angle of the tooth found best for cutting soft wood is much more acute than for hard. For softwood the teeth should have large, well-rounded gullets to allow of the ready escape of the sawdust.

TENSIONING THE BAND SAW.

For tensioning a band saw, have the saw perfectly level before attempting to roll tension in it, for the roller will not perform its work if the saw is not level and free from lumps. Some filers adjust the tension in saws to suit the crown of the wheels. I would prefer to adjust the tension to suit the feed of the mill—not the speed of the mill, but the feed of the carriage. The speed of a band mill has nothing to do with the tensioning of the saws, as in the case of circular saws, although it has much to do with the work and life of the saws, as too much or not enough speed will have great influence in inducing cracks. In tensioning a 10-inch band saw I use a gage crowned on a segment of a 32-foot circle. Some may think this is a little too much tension for a 10-inch saw. As a rule, I give a saw all the tension the blade will stand and at the same time have it so it will lie flat on my leveling block.—A.B.

SAWS CRACKING.

It is impossible for saw-makers to guarantee their saws against cracking. A saw may be all right, but the mill on which the saw is run may be in such a shape that any saw would crack. Too much tension, uneven tension, crystallization from too heavy blows with the hammer, cutting the surface of the saw plate with a sharp-face hammer, sharp angles in the gullets, guides not being properly adjusted to the saw, casehardening the gullets of the teeth with the emery wheel, not having sufficient throat room to chamber the sawdust, or not having sufficient hook in the saws, all constitute causes whereby saws crack.

DOWELING AND HANDWORK.

It is not often that the improvements brought about by the use of machinery afford much aid and comfort to hand workers in the same line; but I recently saw a man use the dowel method very advantageously in making a screen door by hand.

He sawed his stock, clamped it up; then bored for and drove his dowels from the outside. The method was quick for hand work and it is probable that by slanting his dowels a trifle he got a stronger job than he would by boring them square with the work.

—What makes a band saw cut straight lumber? It is the uniform tension and the perfect fitting of the teeth. When a saw snakes or runs in or out of the log it is often due to the fact that it has not been perfectly tensioned, or the teeth not properly swaged and dressed. A band saw improperly tensioned, or teeth improperly fitted, will run in or out every time, therefore too much care cannot be taken when tensioning or when fitting the teeth. A poorly-tensioned saw will not strain up evenly on the wheels, and, if run very long that way will probably break.

On July 25th, the anniversary of the fire which wiped out the large Edwards sawmill at New Edinburgh, near Ottawa, the reconstructed mills started operations again. The new buildings are all of reinforced concrete, and when every detail has been completed will be the finest of the kind in either Canada or the United States. C. K. Plummer, constructing engineer, of Atlanta, Ga., had full charge of the work. The whole enclosure measures 600 by 400 feet, and within this are the main planing mill, 100 by 152 feet, and the sash factory, 70 by 300 feet, and two stories in height. Every machine within the buildings is driven by an individual motor, and the entire plant is operated by electricity developed from the Rideau River close by. From 300 to 350 men are employed.

—Musical instruments which come to the tropics are generally supposed to be constructed to suit the climate. One difference to be observed is in the manufacture of the keyboard. Instead of the ivory touch a celluloid one is substituted. The celluloid is put on in one piece and bent over the front without a lip, the edge is being slightly bevelled. When the celluloid touch is glued on, it is pinned with two brass pins at the bottom of the front, and one at the rear end of the touch. Ivory keys, it is said, put on in the usual way, are likely to come off owing to the heat and moisture of the climate.