

"twists," still working from both sides of the blade and using the cross-faced hammer.

Now proceed to open or tension the saw until it shows the required amount of drop from the straight-edge, figure 5, usually about a sixteenth of an inch in a ten-inch saw. The greatest opening should be done in the center of the blade, decreasing gradually to within about an inch and a half from the tooth edge and about an inch from the back edge, varying a little according to the work to be performed. Be careful not to get the saw too open and examine from time to time with the small straight-edge. To insure the saw travelling on the wheels without any lateral motion, the tension must be perfectly uniform throughout the entire blade.

The proper amount of tension varies according to the feed of the mill and crown of the wheel, but $\frac{1}{8}$ or $\frac{3}{8}$ of an inch is about the average used. The use of a tension

ing the teeth. Cracks are liable to start from any of these case-hardened spots.

Never let saw come in contact with back guard wheel, as case-hardening is bound to ensue, from which cracks will surely result; in case saw is accidentally forced against the guard and case-hardened, remove the glaze at once by holding a piece of soft emery wheel against back edge while saw is running slowly.

It is essential to have toothed edge of saw tighter than

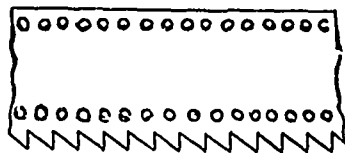


FIG. 7.

any other part, and to accomplish this without materially affecting the uniformity of tension, roll the saw a little longer on the back edge. Let the increased length begin at the point in saw where the greatest tension shows and let the back edge show about $\frac{3}{8}$ of an inch rounding in every five feet, then tilt upper wheel forward enough to make saw have as strong a pressure on wheel at back edge as at front; this will leave part of saw between wheels with a tight toothed edge without subjecting it to that undue strain brought about by making tooth edge tightest by an all tilt movement.

The guides should be lined with either soft Babbit metal or hard end wood and adjusted as closely to the side of saw as possible without heating the blade by friction against the metal or wood. The side of saw would be in perfect alignment with the track and guides adjusted to saw; under no circumstances should the saw be deflected by guides, but have free but small and equal clearance on both sides.

The tensile strain should be only sufficient to prevent slipping of saw on lower wheel; the highest capacity and

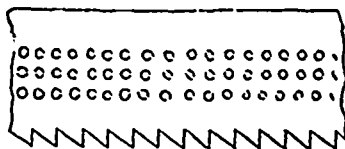


FIG. 8.

best mills now rarely exceed a strain of 5,000 pounds, which is all sufficient if saw and mill are in proper condition, while no amount of strain will make an irregularly tensioned saw or a poorly aligned mill make good lumber, but will instead bring more strain on every part of the mill and cause the saw to crack much sooner. The majority of the large mills are now using the roller or stretcher machine for putting in the tension. The desired effect can be attained in a shorter time and with less injury to the saw than if the tension all be put in by hammer. It is necessary, however, to use the hammer for finishing and regulating after the use of the stretcher.

John Morrison, an employee of the Huntsville Lumber Company, was killed by the stub of a tree falling upon him, breaking his back.

Consult our advertising pages if you are in need of machinery, and mention the CANADA LUMBERMAN when corresponding with advertisers.

Mr. John P. Newman, of Warton, writes THE LUMBERMAN as follows: "Permit me to congratulate you on the excellent report of the recent lumbermen's meeting in Toronto."

The Eustis Mining Co., Eustis, Que., have again commenced sinking in their shaft, and for this purpose have placed an order with the Jenckes Machine Co., of Sherbrooke, for one of their special underground hoists, to be worked by compressed air.

It is estimated that 3,000 to 4,000 cords of pulp wood a day enter into the manufacture of paper in the United States. At the minimum, 3,000 cords, the total for a year would be the enormous amount of 900,000 cords. It is safe to call it 1,000,000. If this wood were piled in one continuous string, it would make a wall four feet wide and four feet high a little over 1,515 miles in length. It can be seen what a prodigious thing the wood pulp industry is, and at what a tremendous rate it is devouring trees, mainly spruce. Yet all this wood is converted into paper, which, after being used, vanishes from sight in a few days, and goes back to dust, out of which element the trees grow.

MICHIGAN LETTER.

(Regular Correspondence of the CANADA LUMBERMAN.)

THE lumber industry of Michigan is experiencing a boom such as has not been realized for many years past, said to be the direct result of the shutting out of Canadian lumber by the two dollar duty. The quantity of lumber shipped from Saginaw in October was more than double that shipped in the same month last year, and Bay City has also been the centre of some heavy transactions. The trade has been hampered somewhat by the inability of shippers to secure cars for moving the stock.

It would appear that Michigan lumbermen anticipate that some action will be taken by the Canadian governments to restrict the export of saw logs. Operations in the woods both in Michigan and on the Georgian Bay were never, perhaps, so active. Men have been engaged to go into the woods in large numbers, and at better wages. It is estimated that in Michigan the production will be fifty per cent. greater than during any winter for the past five years. In view of the increased value of pine stumpage, we can only conclude that this action is caused by a belief that no logs will be permitted to be exported from Canada, and hence there will be a good demand for both lumber and logs. S. O. Fisher, of Bay City, expects to lumber about 20,000,000 feet in the upper peninsula of Michigan and in the Georgian Bay country, and Fisher & Turner will lumber some 30,000,000 feet in Canada, the logs to go to Bay City for sawing.

Saginaw and Bay City lumbermen recently rose in arms against the railway companies, claiming that they were not being dealt with fairly with regard to freight rates. The rate from Bay City and Saginaw to the east is supposed to be eighty-four per cent. of the Chicago rate, but it was claimed that the railways had been giving cut rates to Chicago dealers. At a meeting of lumbermen and representatives of the railway, an agreement was reached, and in future if any cut is given to Chicago a proportionate cut will be accorded to the valley dealers.

A log towing association has been formed at Cheboygan, by Thomas Charlton, of Tonawanda, and Thorntsen Smith's Sons, of Cheboygan. Three tugs will comprise the fleet.

The A. W. Wright Company, of Saginaw, is shipping a large consignment of lumber to South Africa.

A new hardwood saw mill is being built at Grayling to saw the timber on a tract owned by Frank Buhl, of Grayling, and W. K. Jackson, of Buffalo.

The advance in the price of salt is proving a bonanza for saw mills in the Saginaw Valley with salt block attachments. Over 71,000 barrels were produced in Saginaw and Bay City in September, the advance in price on which amounts to \$24,850.

At this end of the river only the mills of Bliss & Van Auken and the Saginaw Lumber and Salt Company are running. The former have several million feet yet to cut, and the latter company will likely continue operations for some time yet, although they will carry over a considerable stock of logs.

This season logs were rafted from the Georgian Bay to Bay City as follows:

	Feet.
May	9,825,320
June	37,125,034
July	43,342,448
August	22,145,276
September	20,983,472
October	13,209,603

Total.....146,630,853

The east shore of Lake Michigan has ceased to be a lumber producing district. At Luddington one of the great mills, that of the Pere Marquette Lumber Co., has cut its last pine log, and there is but a few million feet of lumber in pile at Luddington compared to the many millions of feet that used to be sawed there. Luddington has joined Muskegon, Whitehall and Grand Rapids in the group of "has-beens" in the lumber manufacturing industry in western Michigan.

SAGINAW, Mich., Nov. 22, 1897.

The Bonanza Nickel Mining Co. of Sudbury, Limited, have placed an order with the Jenckes Machine Co., of Sherbrooke, for a 10-stamp gold mill, complete, with two 6-foot vanners. It is their intention to install this mill immediately.

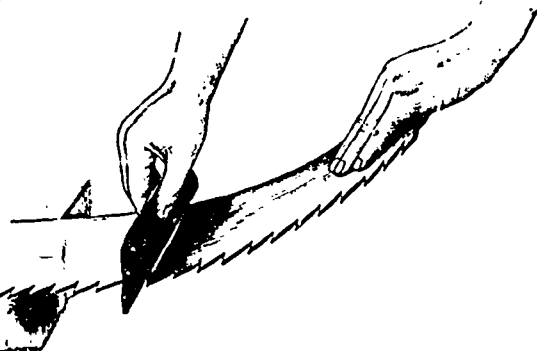


FIG. 5.

gauge (see cut) with one edge curved to the amount of tension wanted will be found of great service in adjusting and putting tension in saws. Place the saw on anvil as in hammering, hold the tension gauge square across the blade at arms' length as in figure 2, and if the tension has been properly adjusted the saw will conform to the curved edge of the tension gauge from tooth edge to back. To reduce the amount of tension or stiffen the blade, hammer gently along the edges of the saw (front and back), taking care not to strike nearer than a quarter of an inch from the edge or bottom of a tooth, figure 7. To increase the tension (or "open up") hammer the center or body of blade, testing frequently with the tension gauge, figure 8.

The matter of feed is a very important item in the successful running and life of a band saw. The good sawyer is one who will get all the lumber out of a log there is in it at the rate of speed up to the capacity of the mill, and not strain the saw or machine in so doing. Let the feed "get away" from you but for an instant and a fracture is almost sure to occur.

Do not have sharp gullets to the teeth; this concentrates the bend of the saw, as it runs over the wheels too much at one point. Use as long a gullet as practicable, with no sharp corners or abrupt angles (see cut). Teeth that are too long chatter in the cut and sometimes cause fractures by throwing undue strain on the blade at the root of the tooth.

The swaging and fitting of the teeth is practically the same as in a full swaged gang saw, the swaging being side-filed to a uniform width with an under cut in order to

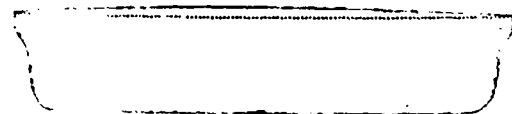


FIG. 6.

TENSION GAUGE.—Made in lengths from 6 to 12 inches, with the curved edge adapted to face of the wheels and the tension required.

leave the extreme point of tooth the widest; the full amount of swage when side-filed should never exceed No. 8 gauge in a 14 gauge saw, and in hard timber can be run on No. 9 gauge. It is advisable to run as little swage as practicable, as it decreases tensile strain on the saw. The amount of hook ranges from four inches to six and one-half inches in a 10-inch saw, being governed by the timber to be sawn and the amount of feed carried; when a properly hammered saw runs perfectly true on the wheels out of the cut, but "chases" back on the wheels as soon as it enters the log, increase the amount of hook until saw retains practically the same position on wheels both in and out of the cut.

In sharpening use a medium soft emery wheel, and do not crowd it on its work, which will result in case-hardening