logs, containing 1,154,862 feet B.M., and 403 culls, and not 18,878 pieces, containing 1,200,810 feet, as stated by "Lumberman," as the culls were not measured. There were also 255 pieces boom timber, containing 35,659 feet B.M., but as "Lumberman" has not taken this into consideration and gives no returns of same, it is needless to discuss this aspect of the case.

There was another scale made of these logs by two competent and practical licensed scalers, who have been scaling logs cut upon the Crown domain on the Ottawa and in other parts of the province during the past 16 years, whose work during those years has never been challenged, and they are looked upon as two of the most competent men on the cullers' staff. Such being the case, I presume it will be interesting to the public to ascertain the result of their labor. These men were employed by the firm who sold the logs, and having no interest whatever in the transaction, were handed a copy of the contract and instructed to scale the logs in accordance with the wording of said contract. They did so, and the results bore me out in recommending a re-measurement of the logs. They scaled 18,353 pieces logs, containing 1,461,420 feet B.M. I would here ask "Lumberman," if he was disposed to be fair to himself, scalers, rangers and all parties interested, why did he not give the result of this scale to the public.

I presume, Mr. Editor, that you understand that it is the system and duty of all cullers to reduce logs for visible defects only. That being the case, it is improper for cullers to reduce for unseen defects, and I desire to draw your attention and the attention of the public to the fact that for logs scaled in the water, as was done by the scalers mentioned, there should be a large rreduction made for defects than when scaled on the skids, as the logs are reduced for side defects which are not visible on the skids. Would it not be reasonable to suppose that when these scalers, both being licensed, scaled the logs according to contract, the water scale would be under the bush scale? Yet these scalers find 306,558 ft. B.M. more than the bush scale.

In connection with the scale made by the department I desire to say that the men who did the work are considered competent and practical men, and they measured the logs in such a manner as to ascertain the actual quantity of merchantable lumber the logs would produce, and they found the logs would produce 1,547,731 feet B. M., or 18,516 ft. more than the figures given by "Lumberman" and 392,869 feet more than the bush scale. As to the discrepancy between the rangers estimate in this particular case and the bush scale, the ranger's estimate of the logs in question was 1,633,050 feet B. M., and not 1,801,215 feet as stated by "Lumberman." In other words, the ranger's estimate was 73,040 feet B. M. over the actual output, and the culler's actual scale on the skids was 405,148 feet below the actual output. I will now leave the public to judge whether the ranger's estimate or the culler's actual measurement was the most accurate. You will also bear in mind that it was not the intention of the department or its officers to collect the crown dues upon the ranger's estimate, as all the department desire is to have the dues paid upon the actual sound lumber the logs would produce.

Not knowing anything in connection with the scale made over the jack ladder, and the manner in which lumber was treated in the mill, I am not in a position to discuss this question, but when "Lumberman" speaks of an over-run of 20 per cent. over Doyle's rule on account of improved methods in manufacturing, he should be fair to himself and the public and state that all lumber is cut ⅛ inch thick in order to allow for shrinkage and have the board dress plump inch, which means one board in eight, and which is not considered or allowed in calculations made by Doyle's rule. There are other points in connection with the jobbers who cut the logs which could be discussed, and which would be interesting to the public, but as "Lumberman" has not touched on these points, I will refrain from doing so.

In conclusion, permit me to say I will now drop the matter, and will not be drawn into any further correspondence on the subject, as I understand that the whole matter is to be investigated by the courts, but will leave you, Mr. Editor, and the public, to judge whether myself and fellow ranger has in this case sought to build up a reputation for ourselves at "Lumberman's" expense, or have sought to protect the interests of the Crown Lands Department and the people of this province.

Trusting that I have not taken up too much space in your enterprising journal, I remain,

Yours truly, WOOD RANGER.

P. S. Your editorial in the same issue is timely and to the point that there is required in this province some uniform system in regard to grading lumber, as the large quantity of mill culls in this case would indicate. As to the present system of scaling logs in the woods, it is as nearly perfect as it is possible to get it, and I can assure you that there is very little friction between the Crown Lands Department, its officers and the lumbermen, notwithstanding the statements of "Lumberman" in your issue of April last.

CARE AND MANAGEMENT OF BAND SAWS.

By the courtesy of Messrs. Henry Disston & Sons, of Philadelphia, Pa., we are permitted to publish the following on the care and management of band saws, which we believe will be found of interest to saw mill men and filers:

It is generally acknowledged that the band saw is, in a great measure, taking the place of the circular saw for log sawing, and the general introduction of them into new mills demonstrates that the experimental stage is passed and that the band saw as an instrument for manufacturing lumber has come to stay.

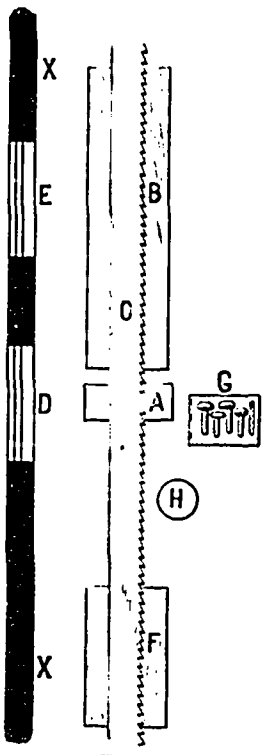

FIG. 1.

(Cut showing proper position of Anvil Levelling Table, Table for hammers and position of operator at work.)

We receive many letters from band mill owners and operators asking our advice as to the best manner to fit, tension and operate the saws to attain the best results in capacity and quality of the lumber made, and at the same time get the most wear out of the saws. It is impossible to lay down a set of rules to fit all cases, or answer correctly any single one without knowing all the conditions under which the saws are run, but we will give a few of the most important points in reference to the care and management of the band saw, which, if followed out carefully, can not be otherwise than a benefit to those who have neglected any of these points.

We will assume that you have a good modern mill, one from a first-class builder who has learned from experience to so proportion and distribute the metal in his machine that the saw can be strained up to the proper point without springing or distorting any part of the machine and have an ample margin of strength to properly stand the additional strain put on it by vibration. Such

FIG. 2.

a mill is the only one a man can reasonably expect to get highest results from.

Vibration is one of the greatest causes of bad results in the use of band saws, and, knowing this, particular attention should be given to the wheels and their shafts, the journals and boxes; the wheels must be round and in perfect balance, and the shafts must run free in their boxes, with no lost motion. Sawyers occasionally complain that their saws, which have been doing good work and giving satisfaction, commence to crack and finally break. This fact is not so surprising when we consider the immense tensile strain the saw is subject to whilst running and the immense number of times in a day that the saw is bent and straightened in running over the wheels, all of which eventually causes crystallization of the steel and cracks the saw.

None of the leading band mill builders are making as much crown to their wheels as they were a few years back, and some of them were making flat wheels; each style has its advocates and will give good results when

FIG. 3.

properly handled, but all of our experiments are in favor of flat wheels, both as to capacity of mill and life of saws, though as some of the best mill builders give ⅛ of an inch crown in a 10-inch face wheel, it seems a question of education or preference with the operators.

Still, common philosophy shows that the least amount of crown one has in their wheels, the less tension necessary in the saws, which in turn means less hammering and rolling, flatter saws, less kerf, and less tendency to crack.

Perfectly uniform tension is the next important point, for if a saw has fast and loose spots in it, the tendency to crack is largely increased, the fast spot cracking from undue tensile strain and the loose spot from constant buckling of surplus metal.

The tools required for hammering band saws will be a cross-face hammer, a round or dog-head hammer, and a twist-face hammer, each weighing about 3½ pounds. The anvil should have a flat face and be perfectly true.

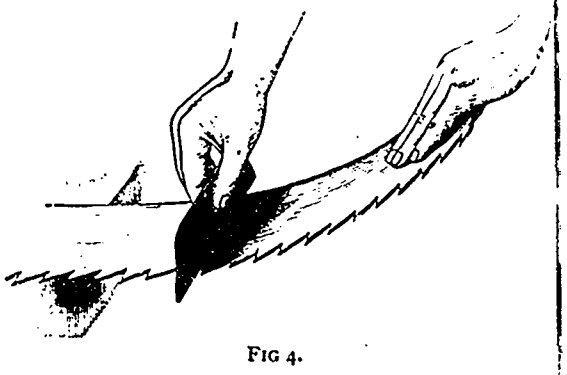

FIG 4.

Strike light fair blows, using care not to cut or mark the surface of the saw by the hammer, as cracks are apt to start from such marks, particularly when occurring near the edges.

To experiment with, cut a piece three feet long from a worn out or broken band saw, lay it on the anvil, taking your position at H in figure 1. Commencing at the end of the piece furthest from you, place your straight-edge square across the blade, and holding the blade with the left hand cause it to bend or curve, as shown in figure 2. The places drawn to the straight-edge, as in figure 3, are "Fast" and those places that drop from the straight-edge are "Loose." The first object is to make the saw "flat" or stiff, as shown in figure 4, after having knocked down all the lumps. Having located a "fast" place, you will notice that it shows on both sides of the blade similar to the manner in which a lump shows when the saw is lying flat. Remove the "fast" by use of the round hammer, working on both sides of the blade, and trying frequently with the short straight-edge. Be careful at all times to keep the edges true. Now take out the "loose" by use of the same hammer until you have the piece flat or stiff throughout. Then proceed to locate and remove the