

grade. The wood was simply rubbed down into a pulp against the periphery of a wheel prepared with a rough face. At the Paris exposition, 1867, was to be seen in action a large machine of 50 horse power for making wood pulp for paper. Only whitewoods were thought to be available for the purpose.

LARGE LOGGING ENGINE.

The accompanying illustration represents what is said to be the largest logging engine yet turned out in British Columbia. It was manufactured by the Vancouver Engineering Works for the British Columbia Mills, Timber & Trading Company. The engine has cylinders of 10 inches in diameter and 15 inch stroke. It is very strong throughout, the frame being built up of 15 inch steel I beams. The main drum has a capacity of $1\frac{1}{2}$ miles of $\frac{3}{8}$ cable and the haul-back drum a capacity of 3 miles of $\frac{3}{8}$ cable. The boiler is 60 inches in diameter by 132 inches high and carries a working pressure of 150 pounds of steam. The front drum of the engine is fitted with the McNair patent device for setting the friction. The weight of the engine is about 17 tons.

CARE OF BOX MACHINERY.

Regarding the care of box machinery, a writer in the Woodworker says:

I recently suggested that some improvement could be made to a surfacing planer by having two cutting heads on the top of the smoother—two cylinders of two knives each, instead of one cylinder of four knives, with the front one raised a little so as to divide the cut between the two heads. This I suggested for two reasons: First, because it would give us four driving belts instead of two, which would insure against choking down when a lumpy board came along, and second, because the front head would then get the bulk of the dirt and grit from the board, making it easier to keep the back cutter in shape for smooth finishing than would be possible if there were but one head on the machine.

A question which came up was in relation to the bottom cutter; a reader wanted to know what was to be done with that part of the machine.

If you follow closely the passing of stock from the yard to the sawing machine, you will find that quite a general practice is to do the resawing first, and then run the boards through the surfacer. Further, when those boards go through the planer they have this freshly-sawed part turned down, and the dirty and lumpy work comes to the top cutters, where I suggested doubling up. Also, it is not at all unusual to not only turn the freshly-sawed side down, but to also let it go at that without any planing at all, so that the case is rather frequent where only one side is surfaced at all, and that is almost always the top side. Then, if it should be desirable at some time to run thick stuff and surface both sides, the top is where the burden of cutting in case of uneven thickness rests,

for the board is held firmly in relation to the bottom cutter by the platen and feed rolls, and there can be no variation of the cut there during the running of a board, no matter what it may vary in thickness. I repeat, then, my suggestion that some improvement could be made in the ordinary smoothing planer practice by having two cutterheads for top surfacing and distributing the work of four knives to two heads and four belts, instead of one head and two belts.

This year there is particular need for the very best of facilities for matching up of box boards. I do not mean the tongue-and-grooving, but the fitting together at the saw table of such widths as are required to make up a box side, for the scarcity and high price of lumber has led to the use of smaller pieces of scrap, and has practically doubled the work in this line. While it is all right to save timber, and some might well have learned the lesson sooner, it is well, too, to see that it is saved without costing more in labor expense than the timber is



LARGEST LOGGING ENGINE YET BUILT IN BRITISH COLUMBIA.

worth. I have seen a man stand at a little table rip saw with his gauge set for the width that it was desired to make up, which might be of any number of pieces, and when a piece came along that had no good edge to work from he would slide it alongside of the saw and trim it on one edge, trusting his eye and his hands to get a straight, even cut. Now, no matter how good a man's eye may be, or how deft his hand, it takes up some time to do this, and it cannot be as satisfactorily done even then as it would be if there were some guide for the work; besides, there is an element of danger in this work that might as well be reduced.

For doing work of this kind one should have a saw frame with that part outside the saw line sliding like a carriage, and if he has not he should work one of his table saws over and get some kind of a sliding arrangement here. Let the inner part of the frame, where the gauge is set, and where the box side is cut to size, remain as it is if desired, but be sure and get some sort of a carriage on the outside of the saw so those pieces that have to have an edge trimmed can have it done in a business-like and satisfactory manner. When the thing is once tried the advantages will soon become apparent. Another thing worth trying on these

little table saws is, if you have a wooden top try covering it with sheet steel; it will not only make a better working surface, but it will also insure a long life to the table top.

When you refit those little saws, do not get the idea that they are good for an indefinite period of service without attention, and leave them at that, for they require certain small attentions every day, which, in the aggregate, are of as much importance as the refitting of the machines themselves. Do not think they will run if the operator will only squirt a little oil at them semi-occasionally, but see that they are provided with oiling facilities, and then see that they are oiled regularly. I have seen such rigs in operation, and by-and-by have seen smoke rising from the journals; the result would be from two hours to half a day's time lost that need not have been if they had been anything like properly lubricated.

Not only is it of importance to give attention to the oiling of these and other machines in the factory, but they should be kept from getting clogged with dust and dirt till it is almost revolting to have to examine the interior of the machine. Do you ever get affected with the cleaning-up habit? Do you have the machines in the place cleaned regularly, and try to induce the men to take some interest in the outward appearance of the machinery? If you do not, you ought to try it at once. Do you just let the machines go because you think you cannot spare the time and expense of cleaning up occasionally? If you do, you ought to try a change for luck, and see if what you first looked at as a loss of time does not really prove to be time well spent.

I saw a young foreman inaugurate a plan along this line one time that struck me as being good enough to mention, that others, who have not yet taken up this subject, may get some idea therefrom. The shop was an excellent one, so far as the building itself was concerned, and, as a rule, the floor was kept nice and clean, but the machinery was being run without any set period for cleaning up, which had resulted in leaving most of it in a shape that a cleanly man would abhor.

An idea struck the foreman and he passed around the word to every operator to stop at 15 minutes before quitting time on that (Saturday) evening and devote 15 minutes to cleaning up his machine. Promptly at the time mentioned every man flew to cleaning up his machine and putting things to rights in his individual part of the shop, and the following Monday morning things presented a better appearance than they had at any previous Monday that I had seen the shop.

A copy of the 1903 catalogue of Messrs. Wm. B. Mershon & Company, Saginaw, Mich., entitled "Use and Care of Band Saws," will be furnished to all interested persons upon application. The hints on the care of band resaw blades, and numerous tables, render it a valuable book for reference. The firm make a specialty of band sawing machines carrying extra thin blades.