

## Boxes and Cooperage

### NEW IDEAS IN THE BOX FACTORY.\*

By G. A. Stafford.

As far as I am acquainted with the different factories the short lumber at the present time is all piled in yards by different methods and air-dried; but I think the modern suggestion is: Direct from the sorter to a dry kiln and then to the factory. The short lumber is taken on platform trucks directly from the yard to the surfacers. In transit, however, all stock is weighed and charged to the factory as so many feet, based on the results of frequent tests. This, I think, gives the most correct per cent. of waste, as you have the footage shipped by scale and also by railroad weight. This can be carried still farther to advantage and the finished stock weighed before loading in cars. This would give us a check against railroad weights and a fair test as to the contents of the car.

The modern factory, if practical, should be on one floor, all shafting in the basement and machines driven from below; or, better still, I think, each machine driven by an individual motor giving the operator positive control of his machine, thereby avoiding many accidents and doing away with the expense of belting, shafting and incidentals.

Stock going first to the surfacers should thereafter be handled as far as possible on conveyors to the saws or different departments. I think on this question of conveyors the box man has been especially slow. There is no other manufacturing business with which I am familiar where this labor-saving device is so little developed. With the proper conveyors our trucking could be reduced to a minimum.

Where handling short to any extent—and I am not sure but in all box factories, regardless of the class of lumber used—the rippers and cut-off saws should be “divorced” and handled entirely separate, and each operator forced to stand on his own record. This plan would permit stock to be carried by movable conveyors from the surfacers direct to the rippers, or, where necessary, to the cut-off saws, where, after being sized, it can go to the matcher and squeezer. If using short lumber I would suggest, directly back of the squeezer, connected by a conveyor, a double cut-off saw, on which could be used two or three saws, where one man can easily trim the output of two or three ripsaws. This gives an absolutely square piece of lumber. From this point a conveyor carries the stock to a horizontal re-saw, printer or nailer.

The dividing or separating of the box factory into departments or sections and systematizing all parts of the business will go far toward increasing our output and thereby decreasing the manufacturing cost per thousand feet. The time has come, with high-priced labor and increasing expenses, that we must look in every direction for this increased capacity.

In the sawmill the one high-priced man, the sawyer, forces the balance of the crew to handle the increased production; but in the box factory we have no one man who can occupy this place. This leads me to the belief that piece

work is the coming and necessary system. Were we to analyze the individual work of our rippers and cut-off men I think there is a surprise in store for nearly all of us. We will find that each and every man is of greatly different value, and when they know we are analyzing and comparing their daily productiveness it will lead to greater endeavor.

The question of piece work is perhaps not applicable to all departments, but, with the proper system, it could be applied to nearly every machine in the box factory. I think our association could well afford to appoint a committee to investigate this important question of system and, by comparing the different methods employed by the 150 or 200 factories represented here, they could offer us a general plan, which by slight modification to suit special requirements, would be of value to all of us. This applies more especially, of course, to what we will term the clerical work of the factory; but as we systematize that part it will lead to the correction of many faults in our manufacturing.

To illustrate my meaning, we will suppose a factory built with the surfacers at the front, and the cut-off saws in one department between the surfacers and rip saws, but arranged in such a way that, where advisable, stock can be trucked to either of the cut-off saws or rip saws. In front of the rip saws come the matchers, horizontal resaws, printers, nails, etc., in their proper order. I find in many factories the rippers are paid from \$2 to \$2.25 per day, and the cut-off men from \$1.75 to \$2 per day. A ripper can size more than he receives where he is paid by the day, for he is not in a position to force the cut-off man supplying him to greater endeavor, and there are times that he is short of stock. If we planned as above and pay our cut-off men by the thousand feet, according to the lengths and widths cut, and have our saws located so that the stock from two or three cut-off saws could be carried to any one rip saw, we put the ripper in a position of always having surplus stock. By arranging the same system for the ripper and paying him by the thousand feet—cut based on size, all lumber figured surface measure—there is no question that the average operator of any machine who finds his stock piling up on him naturally increases his speed; and if we give him an added incentive of more money or a premium over a certain production it will go far toward reaching a maximum output of our factories.

On the important question of waste we have our past reports and percentages. I think we ought to acknowledge that the question of waste is largely in the hands of our sawmen. If our waste has averaged 20 per cent. for the past year and our lumber is worth \$20 per thousand, would it not pay us to make a report to our employees each month as to the waste, and where it has been cut to 12 per cent., or, as some of our friends have reached, a desired point of 10 per cent., we have saved 10 per cent. of our lumber bill. Why not divide a certain per cent. of this saving among the men, through whose efforts we have saved this amount of money?

There is no use in my suggesting any new machinery to you as our friends of that department are very prompt to call our attention to their new devices, but are we not prone to investigate their machines as applicable to our plants as they now stand, instead of considering the new machines as applying to new methods and new systems of manufacturing?

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