Boxes and Cooperage

LUMBER MEASUREMENTS FOR BOXES.

When 4-4 lumber can be had that is full thickness (by which is meant that it will be plump one inch thick, then with good planing machines it may be surfaced two sides to 15-16 inch, or thereabouts, and by resawing this dressed stock on a band resaw, with a saw kerf of about 1-16 inch, two equal pieces are produced, which, when placed together, will come fairly close to ⅞ inch for both or 7-16 inch for one piece.

However, says J. M. Leaver, in Packages, as very little of the one-inch lumber that is produced nowadays will hold up full thickness (indeed much of it is actually below nominal thickness, or about 15-16 in the rough) 7-16 inch stock is not readily produced and I mention this only to call attention to the fact that there is no increase in board measure contents for 7-16 inch as compared with ⅜ inch, it being evident that as both these products are the result of resawing in the centre, a board that has been measured as one inch thick, the actual cost of stock is the same in each case.

But, if 7-16 inch stock is used for sides of boxes, the tops and bottoms must be ripped ⅛ inch wider than if ⅝ inch were used, and in like manner if 7-16 ends are used instead of ⅜ inch the cross-cutting of sides, tops and bottoms must be ⅛ inch longer than if the ends were only ⅜ inch thick.

The foregoing remarks apply equally to the results of resawing, in the centre, boards that are 5-4 and 6-4 thick in the rough, but dressed two sides sufficiently heavy to produce 9-16 inch and 11-16 inch respectively, the principle governing these thicknesses being the same as for 7-16 inch, and, of course, as in the latter case, there is no increase in board measure over and above the ½ inch and ⅝ inch thicknesses.

If it were possible (and I am not asserting that it is not possible in some cases) to obtain better prices for 7-16 inch, 9-16 inch and 11-16 inch stock than for ⅜ inch, ½ inch and ⅝ material, then the question will arise as to the rough stock being suitable thickness, and if the better prices are in reality enough better to cover some disappointments in connection with the practical working of these thicknesses.

But my object at present being that of getting the mind of the beginner to grasp the results by board measure, I must pass over the working points.

In our methods of styling thicknesses we are not at all uniform, for instance while we know that ½ inch rough, 7-16 inch and ⅜ inch surfaced mean one and the same thing so far as board measure contents is concerned we do not make sufficient allowance for the buyer's ignorance; and thus we get inquiries for ½ inch surfaced one side, which may mean just what it says and, therefore, be the product of 5-4 lumber resawed, or may be meant for ½ inch in the rough dressed one side to ⅜ inch or 7-16 inch, and so on, as far as other thicknesses are concerned.

And the beginner is apt to be confused by these points, for undoubtedly no two inquiries for quotations come to him just alike, and he is, therefore, likely to blunder either one way or the other, unless he has an opportunity of inspecting the material being used by the buyer, so, of course, if he figures on 5-4 stock where 4-4 is all that is needed to meet the case, his quotation is hopelessly high and he is apt to do some more figuring in the way of shading prices to get the business, not realizing that he is wrong in principle, rather than that his methods of figuring expense may be wrong.

We know that beginners are usually optimistic as to their ability to beat the experienced box man at his own game, sometimes excessively so. No premonition of loss or disaster exists for such, or at least if in a little time matters do not look so bright they are content to think they will get the next business offered, at better prices, and so recover some or all of the lost ground; if the box business was one that admitted of large profits, there might be some reason to expect recovery from mistakes, but as the business has been in years past, is now, and probably will remain, such hope is vain.

Nowadays so many parts of boxes are made from stock which is thinner than ⅜ inch that I am sure, however the beginner may have fixed in his mind the proper methods to figure the thicknesses already given, he blunders now and then on the figuring of the thinner parts, and, therefore, the subject becomes one of first importance.

Beginning with lumber 1 inch thick, in the rough, we have a good many boxes made from this stock with two resawings which give three pieces from the 1-inch board. Each resawed piece being, therefore, just equal to one-third of the board from which this piece was produced, such stock has, from custom, become generally known as "quarter inch"; it really is nothing of the kind; it should be called and figured "one-third inch." I think, perhaps, that as this material has in most cases been surfaced on one side and the nearest thickness on the rule being ¼ inch, it has been so called for convenience, just as ⅜ inch is the product of ½ inch of lumber. And as in figuring boxes we must always consider there are two pieces of each part required to complete the box, so we must in this case figure that ⅔ inch board measure is the proper fraction to use, and, therefore, where figuring box parts where made from ⅓ inch board, we must take ⅔ of the contents shown in the 4-4 tables of the "Box Estimator," or say,

$$12 \times 12 \times 1 = 1.000 \text{ Feet}$$
$$12 \times 12 \times \tfrac{2}{3} = .667 \text{ Feet}$$

Then we have the problem of producing four pieces from 1-inch lumber in the rough, by three resawings, which product, while figuring one-quarter of board measure, is frequently quoted as 3-16 inch; but as we must, for box parts, use two pieces for each part, only one-half of a 1-inch board is necessary to produce a pair of parts, thus:

$$12 \times 12 \times 1 = 1.000$$
$$12 \times 12 \times \tfrac{1}{2} = .500$$

And it will be evident that, if five pieces are produced from a board 1¼ inch thick, by four resawings, or six pieces are produced from a board 1½ inch thick, by five resawings, the board measure contents of the resawed product always represents the same amount as if made four pieces from 1-inch lumber.

But when we attempt to analyze the product of 1¼-inch lumber which has been resawed twice, or, in other words,