sized, that what would not be noticed if the boards were all of one color, will be sure to attract the eye when the joint is defined by a change of color. The flooring should be selected for color as well as for widths, and all that of one color should be laid together.

EDITORIAL NOTES.

Referring to the paragraph in our July issue concerning the relations between lumbermen and the Canadian railway companies, we desire to say a few words in explanation of our remarks. We do not contend that the lumbermen as a body complain of discourteous treatment from the railway companies, nor that they have ground for such complaint. There are instances, however, where friction has arisen between lumbermen and the railway companies, over the question of damages or other points in dispute, and where the former claim to have been treated unfairly, while, possibly, the railway authorities have acted according to their best judgment. It is very desirable that instances of this character should be reduced to the minimum, in order that no incentive may be given Canadian dealers to purchase lumber in the United States. Points upon which we believe the lumbermen agree collectively are that the freight rate on hardwoods should be made the same as that on pine, and that some sections are entitled to more favorable rates, as pointed out in our previous article.

Of the many improvements that have been made in saw mill machinery, few have attracted greater attention than the double-acting band saw which has been put in operation in a Minneapolis mill. For a number of years such a thing as a band saw that would cut upon the return as well as the forward movement has been known, but lumbermen have been inclined to doubt that it would ever prove a success in practical operation. Mr. F. S. Farr is one lumberman at least who does not hold this view, he having invented and tested such a saw with very satisfactory results. The saws used are fourteen inches wide and have teeth on both sides. In connection therewith, several new inventions have been added. A scheme has been worked out for the raising and lowering of the whole mechanism of a band mill, thus doing away with the guide, and by bringing the upper wheel down close to the log, the saw is made more rigid at that point. The live rolls have been extended back through the saw and along the lower edge of the log deck, while extended arms keep the log over the rolls on their way to the carriage. The setter on the carriage occupies a position on the other end, so that he can see the sawyer when the return trip is started. The inventor believes that he can saw one-third more lumber than by an ordinary single band saw.

Certain lumbermen in the state of Maine are up in arms against the Treasury Department at Washington on account of a decision given in connection with the duty on lumber. The Dingley bill provides that lumber manufactured by American workmen in the province of New Brunswick, from logs obtained from the state of Maine and owned by American citizens, may be shipped back into the United States free of duty. This provision was made to protect the property of some United States lumbermen who have extensive saw mills at St. John, and who obtain their log supply from limits on the St. John and St. Croix rivers and their tributaries. Messrs. Stetson, Cutler & Co. are among these. Recently they imported from New Brunswick 12,000 feet of spruce scantling, planed on one edge, on which the collector at Boston levied a duty of two dollars per thousand feet as lumber, and in addition 50 cents per thousand feet for being planed on one side, under the provision of paragraph 195 of the act. The importers contended that this was unfair, and that if any duty was imposed on the lumber, it should only be for the planing of one edge. The decision was, however, upheld by the Treasury Department, the authorities pointing out that provision was made only for the free entry of sawed and hewed lumber. We fail to see from what standpoint the ruling could be called in question, as it is undoubtedly the correct interpretation of the tariff.

SELECTION, HANDLING AND CARE OF BELTS.

Nearly every engineer of a saw mill has one or more belts under his care, and from the condition many of them are in it would seem that a word of advice as to their selection and care would not be amiss, writes Charles H. Garlick, in Lumber.

If, when in need of a belt, the engineer would, instead of simply ordering a certain number of feet of a certain width and thickness, try the experiment of personally selecting the same for the work which he wishes to have the belt do, and then use the same care in placing the belt in use that he does in starting any other piece of new work or new machine, much better results would be obtained than is usually the case. There are many, very many, rules and formulæ for ascertaining the width of belt necessary for transmitting a certain amount of power. No two of these rules agree, because there are so many conditions that enter into the problem that no hard and fast rule can be used.

From the writer's experience he prefers to use the following formula, which in ordinary cases will be found nearly correct :

$$W = \frac{\text{H.P.} \times 5{,}500}{\text{Velocity} \times \text{contact in feet.}}$$

This is single thickness. For double thickness belts :

$$W = \frac{\text{H.P.} \times 3{,}600}{\text{Velocity} \times \text{contact in feet.}}$$

Or the width of the belt can be found by multiplying horse power to be transmitted by 3,000, and dividing the product by the number of feet of the belt that will pass over the pulley per minute, multiplied by the number of feet of belt in contact with the driving pulley. A very good "rule of thumb" for single belts is : Belting 1 inch wide having a velocity of 600 feet per minute, will transmit 1 horse-power.

It should be borne in mind, however, that the width of the belt necessary to transmit a certain horse power depends on several conditions, one of which is the tension of the belt. When a belt is too tight there is a constant waste in journal friction, and when too loose a great loss in efficiency from "slip." A belt should be procured that will deliver the power required in a fairly slack condition.

Between a slow speed and a wide belt and high speed and a narrow belt, choose high speed and narrow belt wherever practicable, in designing for the transmission of power. A velocity of belt up to a mile a minute is practicable and advantageous.

In taking lengths for belts, where it is not convenient to measure with a tape-line the length required, this rule will be found of service : Add the diameters of the two pulleys together, divide the result by 2, and multiply the quotient by $3\frac{1}{4}$; add the product to twice the distance between the centres of shafting, and you have the length required, very nearly.

In buying, be sure that the leather is oak tanned, has a smooth, polished surface and a fine fiber. It is a good idea to have the belt unrolled and examine it to see that laps are thoroughly made and fastened. Note whether the belt is of the same uniform thickness throughout its entire length, also that the belt is pliable and not harsh and brittle. Note if possible whether the hides which make up the belts are of uniform thickness, or whether the thickness of belt is obtained by splitting the hides, and if the latter is the case reject it.

As to whether you purchase single or double belts, it may be said that single belts can be used successfully up to twelve or fourteen inches in width, but where more power is required than a belt of this width will transmit under the conditions that exist in your plant, belts of double thickness should be used. With single belts, care should be taken to have them of ample width, so that there need be no necessity of having them tight. Double belts should be used when a great strain is to be put on the leather, or for slow speed, or when a belt is to be run at one-fourth turn ; belts which you are called upon to shift frequently, or which are to run on vertical shafts, should be double.

As to the respective value of rubber or leather belts : Rubber belts do not cost as much as leather, nor do they, under favorable conditions, last as long. They cannot be used in places where the belt rubs, nor where it becomes necessary to shift often ; neither can they, as a rule, be run successfully as cross belts. They should not be used where oil is likely to drop on them, nor where they will freeze. They usually last longer than leather belts in damp localities. Rubber belts will adhere to pulleys better than leather. When a rubber belt commences to wear out it is almost impossible to do anything to repair it. Having purchased a new leather belt, it should, if time will permit, be stretched before being placed in work. This can be done in a variety of ways, depending on the width and length of belt and the time at the engineer's disposal. One way is to stretch it over two pulleys placed some distance apart, and attach weights to either end of the belt. During the stretching period a little oil should be applied to the leather.

Belting for electric lighting machinery must have some characteristics all its own. For ordinary machines a positive steady motion is not absolutely necessary, but with an electric plant it is different. It is necessary for the belt to be endless and of a uniform thickness. Even so small a thing as uneven laps will cause a slight but constant jumping or flickering of lamps. With most dynamos as built to-day provision is made for the purpose of taking up any stretch that may