THE McFARLANE-NEILL MANUFACTURING COMPANY.

Among the leading manufacturers of cant dogs is the McFarlane-Neill Manufacturing Company, Limited, with headquarters at St. Mary's, York County, New Brunswick. We give herewith an illustration of their new factory, which is conveniently and beautifully situated overlooking the St. John river. This concern was originally established in the year 1885, by the late Walter McFarlane, who was then engaged in the manufacture of hames. In a short time Mr. McFarlane added a new branch and began the manufacture of cant dogs, he being the sole inventor of the solid forged steel socket made in one piece. After his death in 1898 the business was carried on by Mrs. McFarlane for two years. In 1891 the important interests were incorporated under the present title, with a paid-up capital of $100,000, thus making it one of the most extensive concerns of its kind in the Dominion. The officers of the company are: President, James S. Neill; Vice-President, Mrs. Jane McFarlane; General Manager, M. A. Tweeddale; Directors, E. Bryon Winslow and F. J. Morrison.

The high standing of the company is well known, and its officers and directors possess a thorough knowledge of the trade, while personal reputation is a guarantee that all business transactions with them will be mutually satisfactory.

The McFarlane-Neill Manufacturing Company are the sole manufacturers of the McFarlane forged steel socket cant dogs, and control the patent for Canada. All the handles are carefully selected from split rock maple. The company consume in one year over three hundred cars of lumber. This lumber is all air dried after being manufactured into handles, and they carry a stock of from 30,000 to 40,000 from year to year. These handles are manufactured in thirty-six different varieties, ranging in length from two to six feet. In addition to this special branch, the firm manufacture single and double Harpoon hay forks, hay carriers, slings, hay pulleys, floor hooks, pole irons, grapples and all kinds of drop forgings. They recently added a tackle block plant for the manufacture of ship blocks and all kinds of tackle. They have also a first-class electric light plant which permits of operations being carried on night and day. The factory is built of brick and thoroughly piped, and is supplied by water which is carried a distance of one mile through a three-inch pipe from an artesian well having an elevation of 150 feet, of which there is a never-failing supply of water. This company do an extensive trade and ship in car lots to the upper provinces, and as far west as British Columbia.
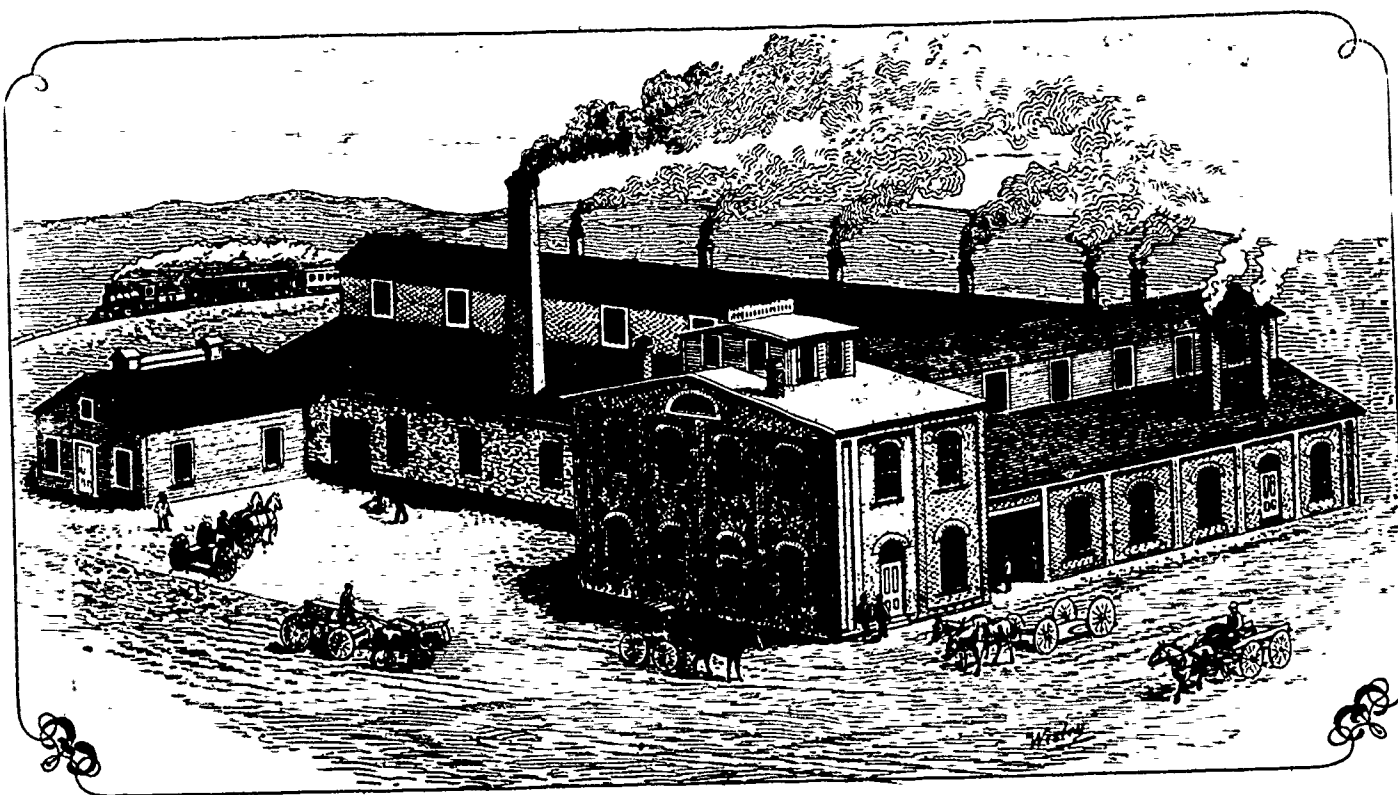
TO FIND THE LENGTH OF BELT REQUIRED.

In a recent Wood-Worker an enquirer asked several questions concerning the duties of a millright. One of them was, how to find the proper length of a belt after the distance around the pulleys is known. If the pulleys are up the simplest way is to take a tape line and put it around the pulleys the same as you would the belt; whatever the tape reads that length your belt should be.

If you can not do this there is a simple rule to go by (for a straight belt). Suppose the distances between the centres of two shafts is 14 feet, the diameter of one pulley 8 feet and the other 4 feet, and the thickness of the belt ¼-inch. Then half the circumference of the 8-foot pulley is 12.5664 feet and half the circumference of the 4-foot pulley is 6.2834. Three times the thickness of the belt is ¾-inch or .0625 feet. Then 28 plus 12.5664 plus 6.2834 plus .0625 equals 46.9103, or 46 feet and 10 15/16 inches is the length of your belt. Therefore, the rule for a straight belt is this: To twice the distance between the two centres add half the circumference of each pulley, with three times the thickness of the belt.

To find the length of a cross belt the rule is more complex. First, the distance from the center of each pulley to the center of the point where they will cross must be obtained. If both pulleys should happen to be the same diameter, the cross will occur exactly in the center of the space between them. If not, then that point will be in proportion to their respective diameters and may be found by the following rule: Divide the diameter of the larger pulley by that of the smaller and add 1 to the quotient. This will represent the number of parts into which the distance between the centres is supposed to be divided. Then as the whole number of parts taken by the larger pulley, so is the whole distance between the centres to the point where the cross will occur. Example: A pulley 8 feet diameter is to drive one of 4 feet with a cross belt ¼-inch thick, the distance between the centres being 14 feet. Required, the distance to the point where they will cross and the whole length of the belt.

First find the point where they will cross by the foregoing rule: 8 divided by 4 equals 2, plus 1 equals 3. This represents that the 14 feet are supposed to be divided into three parts, and as the diameter of the same pulley is contained in that of the larger one twice, it shows that two parts of the three must be taken by it—3 is to 2 as 14 is to 9 feet 4 inches. Now, as the whole distance is 14 feet and the larger pulley requires 9 feet 4 inches, the distance from this point to the smaller pulley is 4 feet 8 inches, so that the distance from the center of the large pulley to the point where the belt will cross is 9 feet 4 inches, while the other from the same point will be 4 feet 8 inches.

If a horizontal line be drawn through the center of each pulley, extending from one to the other, and a perpendicular line also drawn through the same points, intersecting it at right angles, there will be two right-angled triangles formed, the base of one being 9 feet 4 inches, with a perpendicular equal to the radius of the 8-foot pulley, or 4 feet, while the other base will be equal to 4 feet 8 inches, with a perpendicular equal to the radius of the 4-foot pulley, or 2 feet, the belt in each case representing the hypothenuse; and as the square root of the sum of the squares of the base and the perpendicular of any right-angled triangle equals the hypothenuse, it is evident that the hypothenuse of these two figures must represent the length of belt between these two parts.

The operation perhaps will be more simple and easier understood if the whole be reduced to inches. Then 112 times 112 equals 12,544 inches, and 48 times 48 equals 2,304 inches, being the square of the base and perpendicular in inches. Then 12,544 plus 2,304 equals 14,848, the square root of which is 121.85 inches. With the other proceed in like manner: 56 times 56 equals 3,136, and 24 times 24 equals 576, and 3,136 plus 576 equals 3,712, the square root of which is 60.92 inches. Now if each of these sums is doubled and half the circumference of each pulley with three times the thickness of the belt be added together, their sum will be equal to the whole length of belt required in inches, which, when reduced to feet, will be found to equal 48 feet 1¼ inches.

The timbers of the Philippine Islands are going to be tested by the United States Bureau of Forestry, it being the intention to establish a testing laboratory at Manila as soon as possible. It is especially desired to test the various processes for the preservation of timber against decay and the attack of insects.

A device for holding down short stuff on the table while using a self-feed saw will be interesting to those who have to rip very short pieces and want to do the work on this kind of a saw. Instead of the usual spring for a hold-down, put in its place a block of 4 x 6, fastened to the feed wheel frame and rounded off in front like a sleigh runner. Raise the table clear of the saw and start it (the saw) running, then lower the table so the saw cuts its way into the block and until the block touches the table. Adjust the feed wheel frame to the right height for the stock being worked, with the block ½ inch lower down than the feed wheel. This makes a hold-down from which no block, however short, can get away.

FACTORY OF THE McFARLANE-NEILL MANUFACTURING CO., ST. MARY'S, N.B.